Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

A STUDY OF THE SPECIES OF TACHYS OF BOREAL AMERICA.

BY ROLAND HAYWARD.

Probably few, if any, genera of Carabidæ have received so little attention from collectors and students of our fauna as the one which forms the subject of the present essay. This is due in part to the small size of the species composing it, and also to the scattered and fragmentary condition of the literature of the subject.

The nearest approach to a monograph of our species that has ever been published is contained in Dr. LeConte's "Descriptive Catalogue of the Geodephagous Coleoptera Inhabiting the United States east of the Rocky Mts."* In a paper which appeared a few years later† the views therein expressed were further modified by that author, several new species described and the genus *Pericompsus* erected for the reception of *ephippiatus*, *sellatus* and *lætulus*. Since that time scarcely anything has been published in this country, with the exception of a few isolated descriptions of new species. With regard to the foreign works on the subject, there are two which require especial mention. The first of these, "De Bembidiis Europæis," was published by Jacquelin-Duval, in 1851.‡ *Tachys* is therein regarded as a group of *Bembidium*, but several characters are suggested in Duval's monograph which have been of service in the separation of our species. The second is by Motschultsky,|| and contains a subdivision of the genus into six genera, the characters on which they are based being of little or no value, as regards our species, even for the definition of groups. The work is so inaccessible to the majority of our students, however, that a reprint of the table of genera therein contained is published in the appendix, together with the original descriptions of the species described from North America, which I have as yet been unable to identify.

Some months after the publication of my paper on *Bembidium*, I undertook to arrange the species of *Tachys* in my own cabinet. This was done without any intention of publication, but it soon

---

* Ann. Lyc., 1848, iv, pp. 468-473.

† Ibid, 1851-2, v, pp. 191-194.

‡ Ann. Soc. Ent. France, 1851, sér. 2, ix.

|| Etudes Ent., 1862, xi, pp. 24-37.

became apparent that the task was by no means an easy one, and that a thorough study of types and comparison of specimens would be necessary before anything could be accomplished. The work has been a long one, and it has been thought best to publish the results, which are offered in the following paper with the hope that some assistance may be afforded thereby to those who may desire in the future to study these small, but interesting insects.

During my work upon this genus I have keenly felt the need of assistance and advice from one, now removed from us, who was ever ready with valuable aid and suggestions for those similarly engaged; a need that I fear will also be appreciated by those who use this paper. No one can realize more fully than I the irreparable loss which entomology has sustained by the death of Dr. George H. Horn.

I desire, however, to acknowledge the kind assistance that I have received in many ways from numerous friends and correspondents, which has added materially to whatever value my work may possess.

My warmest thanks are due to Mr. Samuel Henshaw, who, as heretofore, has rendered me valuable aid. To him I am indebted for a free use of the LeConte collection, for much assistance in bibliographical work and for kind advice.

Messrs. Frederick Blanchard, F. C. Bowditch, H. C. Fall and Charles Liebeck have kindly placed their entire material in my hands for many months, thereby largely increasing the amount that I have had for study, while Messrs. W. H. Harrington, L. E. Ricksecker, Henry Ulke, H. W. Wenzel, H. F. Wickham and Mrs. A. T. Slosson have aided me by the loan and gift of specimens. To all of these I would express my gratitude.

To the American Entomological Society I am under great obligations for the loan of the material formerly in Dr. Horn's cabinet, now a part of their collection; a service that has been of great value.

I would also express my gratitude to M. Rene Oberthür of Rennes, France, who has kindly loaned me the types of several of the species described by Baron Chaudoir.

To Mr. Theodore Pergande I am grateful for the determination of the hosts of several myrmecophilous species.

Lastly, I would express my thanks to my friend Mr. J. H. Emerton for the use of his facile pencil and the care that he has taken in the drawing of the figures.

The genus *Tachys* exhibits a considerable range of variation, several groups having at different times been elevated to the rank of genera. As elsewhere expressed with regard to *Bembidium*, it is my opinion that no satisfactory results can be obtained in generic subdivision until all the species of the genus, at least, shall have been studied, if not, indeed, all those of the tribe Bembidiini.

As here recognized, the genus includes all the members of that tribe in which the anterior tibiæ are obliquely truncate at apex, *Pericompsus*, which differs from *Tachys* only by the deep, entire marginal stria of the elytra, being regarded as a group of the latter genus.

Several other characters not seen in *Bembidium* may be mentioned, which, although not possessed by all the species, are observable in most of them.

Among these the sutural stria of the elytra in nearly all is deeper posteriorly and presents the appearance of being recurved at apex, the recurved portion being parallel either with the margin or with the suture, in the latter case often hooked at tip. This is due to the fact that the other dorsal striæ are usually feebly impressed and almost or entirely effaced at apex, what appears as the recurved portion of the sutural stria being in reality the remnant of the apical portion of the fifth, seventh or, in one group, probably the third stria. In those species in which the elytral striæ are more distinct and entire, or nearly so, this character is less marked, and in *œnescens* is entirely lost.

The scutellar stria of the elytra, which is present in at least all our North American species of *Bembidium*, is entirely absent in those of *Tachys*, and as Duval gives this as one of the distinguishing characters of his group XV, which is the equivalent of *Tachys*, it probably applies to the exotic species.

In most *Tachys* the second and third joints of the antennæ are subequal. Rarely, however, the second is longer than the third. In *Bembidium* the reverse is the case, though in a few species the third is but slightly longer than the second.

Most of the characters employed in the system here proposed have been long known and have become the common property of science, some are brought into greater prominence than heretofore in the grouping of species, while a few, so far as I am aware, are here suggested for the first time. No claim is made that the system will apply to the large number of exotic species that have been described, but, so far as concerns our fauna, it gives a division into what appear to be natural groups, and it is hoped may serve until the tribe Bembidini shall have been studied in its entirety.

Before passing to the definition of our species, it may be well to briefly review the characters used in grouping them.

In nearly all, the head, although not narrowed to a neck, is free from the thorax for some distance behind the eyes. A single exception to this is seen in *œnescens*, in which it is inserted in the thorax to the eyes. This is shown on Plate VI, fig. 9.

The mentum varies in the different species, being more or less emarginate in front, with a tooth of varying prominence at the bottom of the emargination. In rather more than half our species there will be observed, behind the tooth, two large, forameniform punctures (Plate VI, fig. 13), which are entirely absent in the others (Plate VI, fig. 12). This character seems an important one. It is not difficult to detect, even with a moderately powerful hand-lens, and, as soon as recognized, its presence or absence can readily be determined even in our smallest species.

Several differences are observable in the palpi, especially in the comparative length of the small, subulate terminal joint, but I have been unable to make use of these.

The antennæ are subject to some variation. The second and third joints, as already stated, are subequal in the majority of our species. The second joint is, however, slightly shorter than the third in *nanus*, *falli* and *frontalis*, while in *scitulus* and several other species of the ninth group the reverse is the case. In *rufotestaceus* and *lævus* (Plate VI, fig. 14) the second is very distinctly longer than the third, and in the last named species the seven following joints are nearly equal and submoniliform, the eleventh being longer, and the antennæ resemble closely those of *Anillus*.

In nearly all the eyes are large or moderately large and prominent. In *ferrugineus*, however, they are comparatively small and somewhat flattened. This is also the case, to a less degree, in *mordax*.

The thorax affords few characters of use in the division of the genus into groups. It is usually transverse, subquadrate, with the base as wide or wider than the apex, or more rarely slightly narrower. The base is usually squarely truncate, sometimes more or less obliquely so each side. In the fourth group, which includes *tripunctatus*, *incurvus* and most of the more convex species, two series are observable, based upon the presence or absence of three large punctures near the middle of the posterior transverse impression. This is represented on Plate VI, figs. 10 and 11.

Many characters of great importance are derived from the elytra. These are rounded at tip in all the groups, except that containing *œnescens*, in which the apex is subtruncate. The dorsal punctures are usually two in number and differ in position in the different groups. In *œnescens*, however, I have been able to detect but a single puncture, which is so small that it can be located only by the seta arising from it. The recurved portion of the sutural stria, to which allusion has already been made, also affords several useful characters. These differences are well represented in the figures (Pl. VI, figs. 1–8). The other dorsal striæ vary considerably, especially in number, but I am inclined to think that too much value has been assigned to this latter character by several authors. In most species they are impunctured, rarely distinctly punctate. The marginal stria is usually broadly interrupted at middle, rarely (*ephippiatus*, etc.) deep and entire, sometimes with the basal portion obsolete and represented by punctures, or even (*lævus*) completely effaced. In the latter case the marginal setigerous punctures, which are present in all our species near the humerus and apex, assume unusual prominence.

In nearly all our species the first two joints of the anterior tarsi are dilated in the males (Pl. VI, fig. 15), although less broadly than in *Bembidium*. In *corruscus* (Pl. VI, fig. 16) and several other species of the ninth group only the basal joint is dilated, while in *ephippiatus* and its allies and *œnescens* the tarsi are similar in the sexes. The males are usually rarer than the females.

All the species of *Tachys* are of small size, the largest (*sellatus*) being about .16 inch (4 mm.) long, while the smallest (*lævus*) measures only .05 inch (1.25 mm.) in length. Most of them are found in moist places, or are riparial in their habits. Some occur under bark, while a few are myrmecophilous. They are entirely unknown to me in their early stages, and, so far as I am aware, the larva and pupa of but a single species (*nanus*) have been described.*

The genus is represented on both sides of the continent, but the species are more numerous in the southern than in the northern portions of the country.

A few words are necessary with regard to the plate which accompanies this paper. The figures are in the main diagramatic, the minor details being omitted lest they might mislead the student. All have been drawn under high power, so that in those representing the elytra, which have all been drawn on the same scale, more striæ are shown in several cases, than appear when the specimen is magnified to a less degree.

---

* Perris, Hist. pin Mar. (1862), 1863, i, pp. 439-461, figs. 510-516.

In conclusion, I would ask a little indulgence of those who use this paper. No one can realize its shortcomings more fully than I, but if its publication shall lead to a better understanding of our species, my object will have been accomplished.

Forty-five species are recognized in the following pages. These are divided into nine groups, which may thus be separated:

Elytra rounded at tip; head not inserted in the thorax to the eyes ....2.

Elytra subtruncate at tip, the third stria with one very small dorsal puncture near the apex; head inserted in the thorax to the eyes; mentum without forameniform punctures....................Group i. **ænescens.**

2. Mentum without forameniform punctures; marginal stria of elytra interrupted or less deep at middle..3.

Mentum with two large, forameniform punctures behind the tooth.........5.

3. Thorax narrowly margined, the margin not translucent...................4.

Thorax broadly margined, the margin translucent; elytra with the recurved portion of the sutural stria parallel to the margin, third interval with two small dorsal punctures very near the third stria. Group iii. **flavicauda.**

4. Elytra with the recurved portion of the sutural stria parallel to the margin; dorsal punctures two, the first on the fourth stria near the base, the second on the third stria near the apex............Group ii. **nanus.**

Elytra with the recurved portion of the sutural stria short, nearly parallel to the suture; dorsal punctures two, these placed on the third stria when the latter is present, the second at most but slightly behind the middle..Group iv. **incurvus.**

5. Elytra with the marginal stria broadly interrupted at middle (obsolete in *lævus*)..6.

Elytra with the marginal stria deep, entire; two small dorsal punctures on the third interval..............................Group vi. **ephippiatus.**

6. Recurved portion of the sutural stria long, nearly parallel to the suture, distinctly hooked at tip...7.

Recurved portion of the sutural stria moderately long, not hooked at tip; two dorsal punctures on the third stria, the second but slightly behind the middle; form convex..........................Group v. **frontalis.**

Recurved portion of the sutural stria very short, parallel with the suture, not hooked at tip; two dorsal punctures on the third interval near the third stria, the second very distinctly behind the middle; form depressed..Group vii. **lævus.**

7. Elytra with the first dorsal puncture on the third stria, the second at or behind the tip of the recurved portion of the sutural stria, but not enclosed within it...................................Group viii. **vittiger.**

Elytra with the first dorsal puncture on the fourth interval, the second enclosed within the recurved portion of the sutural stria.
Group ix. **proximus.**

Group I. **ænescens.**

Head rather small, inserted in the thorax to the eyes (Pl. VI, fig. 9); mentum without forameniform punctures; antennæ with the second and third joints subequal. Thorax narrowly margined, the margin not translucent. Elytra subtruncate at tip, with one very small dorsal puncture situated close to the apex and apparently on or near the third stria; sutural stria not recurved at apex; marginal stria interrupted at middle.

The anterior tarsi are similar in the sexes.

In this group the single dorsal puncture of the elytra is extremely small, so minute, in fact, that it can be located only by the seta arising from it. It is therefore impossible to determine with certainty its actual position, whether close to or on the third stria.

Judging from our only representative it seems to stand alone more than any other group. It was placed by LeConte in *Blemus*, a genus since suppressed. By other authors it has been referred to *Lymnastis* Motsch.

1. **T. ænescens** Lec. (Plate VI, fig. 1).—Form moderately elongate, depressed. Color brownish-piceous, sometimes rufous, shining, the head usually darker, the elytra sometimes with slight iridescent lustre. Head narrower than the thorax at apex; frontal grooves short; eyes moderate, slightly prominent; antennæ scarcely one-half as long as the body, fuscous, the basal joints paler; palpi testaceous. Prothorax scarcely one-half wider than long, as wide at base as apex; apex truncate; anterior transverse impression obsolete, the posterior rather feeble and close to the base; meidan line deep, abbreviated at each end; basal impressions distinct; base truncate, obliquely so each side; sides slightly rounded in front, oblique behind; hind angles obtuse, but not rounded, not carinate. Elytra slightly wider than the thorax, subparallel, nearly oblong, striate; striæ distinct, impunctate, subentire, the inner ones scarcely deeper, the fifth slightly grooved towards the apex; intervals nearly flat. Body beneath brownish-piceous. Legs pale yellowish-testaceous. Length .07-.09 inch; 1.75-2.25 mm.

A very aberrant species with no apparent affinities, and easily recognizable from all the others in our fauna.

It is known to me only from North Carolina, Florida, Arkansas and Louisiana.

Group II. **nanus.**

Head not inserted in the thorax to the eyes; mentum without forameniform punctures; antennæ with the third joint distinctly longer than the second. Thorax with the side margin narrowly reflexed and not translucent. Elytra rounded at tip, with the recurved portion of the sutural stria nearly parallel to the margin; marginal stria entire, less deep at middle, deepest towards the apex; dorsal punctures two, the first situated on the fourth stria near the base, the second on the third stria near the apex.

In the males the first two joints of the anterior tarsi are distinctly dilated, with the inner apical angles prolonged.

This group is nearly the equivalent of *Tachyta* Kirby, and seems to lead towards *Trechus* of the Pogonini. It differs notably from the others of the genus by the arrangement of the dorsal punctures of the elytra. The third joint of the antennæ is distinctly longer than the second, the two being subequal in most species of *Tachys*.

But two species occur in our fauna. Both are black and resemble each other quite closely. They may thus be separated:

Elongate, depressed; thorax about one-half wider than long, not wider at base than apex, hind angles not or but feebly carinate; elytra subparallel. Length .09-.12 inch. .... **nanus** Gyll.

Broader, slightly convex; thorax nearly twice as wide as long, wider at base than apex; hind angles carinate; elytra more oval. Length .10-.12 inch.. **falli** n. sp.

2. **T. nanus** Gyll. (Pl. VI, fig. 2).—Form elongate, more or less depressed. Color black, sometimes tinged with brownish, shining. Surface more or less finely alutaceous. Head as wide as the thorax at apex; frontal grooves distinct, extending backwards as far as the middle of the eye; eyes moderately large and prominent; antennæ less than one-half the length of the body, piceous, the basal joints more or less rufous; palpi piceous. Prothorax subquadrate, about one-half wider than long, as wide at base as apex; apex very feebly emarginate; anterior transverse impression feeble or nearly obsolete; median line distinct, abbreviated before and behind; posterior transverse impression distinct; basal impressions moderately deep; base truncate; sides rounded in front, slightly sinuate behind; hind angles rectangular, not, or very feebly, carinate. Elytra oblong-ovate, subparallel, slightly wider than the thorax, finely striate, with usually the four or five inner striæ distinct; striæ impunctate, all but the sutural abbreviated behind; dorsal punctures small, the first on the fourth stria about one-fifth from base, the second on the third stria about one-fifth from apex; intervals flat or nearly so. Body beneath black or dark piceous. Legs piceous or nearly black, the tibiæ and tarsi often somewhat tinged with rufous. Length .09-.12 inch; 2.25-3 mm.

One of our best known and most abundant species. It is subject to some variation. The striæ of the elytra vary from moderately distinct to nearly obsolete. The thorax is usually about one-half wider than long, rarely somewhat wider, while the hind angles, although usually not carinate, are occasionally feebly so.

From *falli* it may be recognized by its more elongate and more depressed form, proportionally longer thorax, which is not wider at base than apex, and by the narrower, more parallel elytra, which are less distinctly striate I have been unable to detect in *nanus* the irregular row of sparsely placed, minute, setigerous punctures which occurs on each of the elytral intervals in *falli.*

It has a very wide range of distribution, occurring over almost the entire country from the Atlantic to the Pacific, in Canada, and also in Europe and Siberia. It is most frequently met with under bark, and is also found in sifting leaves.

3. **T. falli** n. sp.—Less elongate than *nanus*, slightly convex. Color black, shining, the elytra sometimes piceous. Surface finely alutaceous. Head as wide as the thorax at apex; frontal grooves distinct, extending posteriorly behind the middle of the eye; eyes moderately large and prominent; antennæ less than one-half the length of the body, piceous, the basal joints scarcely paler; palpi piceous. Prothorax subquadrate, wider at base than apex, nearly twice as wide as long; apex slightly emarginate; anterior transverse impression feeble, the posterior distinct; median line moderately deep, abbreviated at each end; basal impressions large and deep; base truncate; sides slightly arcuate in front, feebly sinuate behind; hind angles rectangular, carinate. Elytra distinctly wider than the thorax, oblong-oval, distinctly striate; striæ impunctate, the sutural entire, the others extending nearly to apex, the seventh feeble or obsolete; dorsal punctures small, placed as in *nanus;* intervals slightly convex, each with an irregular row of very small, setigerous punctures. Body beneath black, shining. Legs piceous, sometimes tinged with rufous. Length .10-.12 inch; 2.5-3 mm.

More robust than the preceding, with the thorax broader as compared with its length and wider at base than apex. The hind angles are distinctly carinate. The elytra differ in being more deeply striate and in their more oval form and greater width as compared with the thorax.

As mentioned in the description, in addition to the usual two dorsal punctures, which are placed almost exactly as in *nanus*, there is an irregular row of very minute, sparsely placed punctures on each interval, each bearing a very short seta. This recalls a similar structure in the next group, in which, however, the true dorsal punctures are differently placed.

I take great pleasure in dedicating this species to my friend, Mr. H. C. Fall, of Pasadena, Cal., to whom I am under obligations for many favors.

More than twenty examples have been studied, both sexes being represented in the material before me.

It occurs in the Pacific coast region, being known to me from

Siskiyon County (Ricksecker) and Lake Tahoe (Fall), California, Oregon, Olympia, Wash. and Vancouver Island.

Group III. flavicauda.

Head not inserted in the thorax to the eyes; mentum without forameniform punctures; antennæ submoniliform, the first three joints normal, the second and third subequal, joints 4–10 shorter and more rounded, subequal, the terminal longer, subacute at tip. Thorax broadly margined, the margin translucent. Elytra rounded at tip, with two small dorsal punctures on the third interval very close to the third stria; recurved portion of the sutural stria nearly parallel to the margin, not hooked at tip; marginal stria much less deep or nearly effaced at middle.

The first two joints of the anterior tarsi are dilated in the males.

But one species is included in this group.

4. **T. flavicauda** Say (Plate VI, fig. 3).—Form rather broad, feebly convex. Color dark piceous or nearly black, the apical third of the elytra yellowish. Surface finely and rather sparsely alutaceus, slightly shining. Head as wide as the thorax at apex; frontal grooves short, not extending behind the middle of the eyes; eyes moderately large and prominent; antennæ less than one-half as long as the body, rufo-testaceous, slightly darker towards the tip; palpi pale testaceous, the terminal joints of both pairs rather longer than usual in the genus. Prothorax about one-half wider than long, slightly wider at base than apex, subquadrate; apex emarginate, the anterior angles slightly prominent; transverse impressions distinct, the posterior deeper; median line moderately deep, extending between the transverse impressions; basal impressions moderate; base truncate; sides feebly arcuate from apex nearly to base, obsoletely sinuate in front of the hind angles, which are rectangular and not carinate. Elytra oblong-ovate, nearly one-half wider than the thorax, the five inner striæ moderately distinct; striæ impunctate; dorsal punctures very small, the first slightly in front of the middle, the second about one-fourth from apex; intervals nearly flat, each with an irregular row of minute punctures, from each of which proceeds a very short seta. Body beneath piceous, the abdomen usually more or less tinged with rufous, especially towards the tip. Legs rufo-testaceous. Length .06–.07 inch; 1.5–1.75 mm.

A very well-known and characteristic little species, incapable of being confused with any other in our fauna.

The antennæ resemble most closely those of *lævus* and *rufotestaceus*, except that the second joint is not longer than the third.

The dorsal punctures of the elytra are very small (Plate VI, fig. 3), so small, in fact, that they can usually be located only by the setæ arising from them, except under high power. The presence of irregular rows of minute setigerous punctures on the elytral intervals recalls a similar arrangement in *T. falli.*

It is very widely distributed. Specimens have been examined from Canada, Massachusetts, New York, Pennsylvania, North and South Carolina, Florida, Michigan, Tennessee, Wisconsin, Iowa, Arkansas, Nebraska, Arizona, California and Washington.

Group IV. incurvus.

Form usually more or less convex. Head not inserted in the thorax to the eyes; mentum without forameniform punctures; antennæ with the second and third joints subequal. Thorax narrowly margined, the margin not translucent. Elytra rounded at tip with two dorsal punctures, these placed on the third stria when the latter is present, the second at or slightly behind the middle; recurved portion of the sutural stria short and nearly parallel to the suture, not hooked at tip; marginal stria broadly interrupted at middle.

In the males the first two joints of the anterior tarsi are more or less dilated.

The largest group of the genus as regards number of species. Many resemble each other quite closely and are not capable of easy definition, although several retain a characteristic facies difficult of expression in words. The members of the group are easily recognizable by the characters given in the table for the definition of groups. The arrangement of the dorsal punctures and the sutural stria are illustrated on Plate VI, fig. 4.

It will be observed in more than one-half of our species that the median line of the thorax terminates on the posterior transverse impression in a large puncture, while on each side at a short distance from it is another of about the same size. Such are described as having "the posterior transverse impression tripunctate at middle." In the others these punctures are lacking. This character is shown on Plate VI, figs. 10 and 11. It seems a good one for the separation of several species otherwise closely allied.

In all our species the frontal grooves are short, not extending posteriorly behind the middle of the eye.

The elytral striæ are impunctate in all except *ferrugineus*, in which the sutural stria is punctulate. Their number varies in the different species, but I am inclined to think that some authors have placed too much reliance on this character. I have accordingly made use of it only when accompanied by others.

The following table is offered with the hope that it may assist the student in the determination of our species. They follow in the text in what seems to be the best order for cabinet arrangement:

Elytra with all the striæ impunctate..2.

Elytra with the sutural stria distinctly punctulate; thorax with the posterior transverse impression tripunctate at middle........................10.

2. Thorax with the posterior transverse impression not tripunctate at middle..3.

Thorax with the posterior transverse impression tripunctate at middle.....6.

3. Very convex; sides of thorax strongly rounded in front, oblique behind...4.

Moderately convex; sides of thorax slightly arcuate in front, feebly sinuate behind..5.

4. Robust; piceous or nearly black, elytra usually more or less brownish; thorax scarcely as wide at base as apex; posterior transverse impression deep; elytra with the sutural stria deep, the other dorsal striæ obsolete; legs testaceous. Length .07-.08 inch........**granarius** Dej.

More elongate; piceous, sometimes slightly tinged with rufous; thorax as wide at base as apex, posterior transverse impression feeble; legs testaceus. Length .10 inch............................**fuscicornis** Chaud.

5. Thorax slightly wider at base than apex; elytra distinctly wider than the thorax.

Moderately elongate; piceous or rufo-piceous, the elytra with an ill-defined vitta or subhumeral and subapical spots pale; sutural stria deep, the other dorsal striæ obsolete; legs testaceous. Length .07-.09 inch. **incurvus** Say.

Very elongate; rufo-testaceous, elytra rarely slightly darker on the disk; elytra oblong-elliptical, elongate, striate as in *incurvus;* legs testaceous. Length .09-.11 inch................................**dolosus** Lec.

Thorax not wider at base than apex; rufous or rufo-piceous; elytra slightly wider than the thorax, striate as in *incurvus;* legs testaceous. Length .08-.09 inch...**rapax** Lec.

6. Thorax not wider at base than apex.................................7.

Thorax wider at base than apex..8.

7. Elongate; rufous or rufo-piceous; thorax about one-half wider than long, sides slightly rounded in front, at most feebly sinuate behind, posterior transverse impression feebly tripunctate; elytra slightly wider than the thorax with a deep sutural stria, the other dorsal striæ obsolete; legs testaceous. Length .08-.10 inch.................**audax** Lec.

Robust; piceous or nearly black, elytra usually pale at apex; thorax nearly twice as wide as long, sides strongly rounded in front, oblique behind, posterior transverse impression distinctly tripunctate; elytra distinctly wider than the thorax, with a sutural and one to three abbreviated dorsal striæ; legs testaceous. Length .07-.09 inch. **xanthopus** Dej.

8. Form convex...9.

Form subdepressed; dark brown or piceous, the elytra often paler at the sides; thorax but slightly wider at base than apex; elytra with a sutural and three or four abbreviated dorsal striæ; legs testaceous. Length .11-.13 inch.................................... **tripunctatus** Say.

9. Reddish brown or piceous, the elytra paler at sides and tip; thorax less narrowed behind than in *tripunctatus*, sides rounded in front, feebly sinuate behind; elytra with a sutural and two or three abbreviated dorsal striæ; legs testaceous. Length .09–.11 inch............**vivax** Lec.

Elongate; black, very shining; thorax about one-half wider than long, sides rounded to behind the middle, sinuate behind; elytra with a sutural and two abbreviated dorsal striæ, the two inner deep, the third feebly marked; legs testaceous. Length .09–.12 inch..........**capax** Lec.

Very robust; dark rufo-piceous, the elytra gradually paler towards the tip; thorax twice as wide as long, sides strongly arcuate nearly to base, sinuate in front of the hind angles; elytra with a sutural and two abbreviated dorsal striæ; legs rufous. Length .08–.10 inch. **liebecki** n. sp.

Moderately elongate; black, shining; thorax about one-half wider than long, very slightly wider at base than apex, sides rounded in front, slightly sinuate behind; elytra with a deep sutural and from one to three abbreviated dorsal striæ; legs rufous or rufo-piceous, the femora darker. Length .08–.10 inch..............................**anthrax** Lec.

Robust; ferrugineous or rufo-piceous, the elytra often with the sides and apex somewhat paler; thorax scarcely one-half wider than long, sides arcuate in front, feebly sinuate behind; elytra slightly wider than the thorax, with a deep sutural stria, the other dorsal striæ obsolete; legs testaceous. Length .08–.11 inch..............**nebulosus** Chaud.

Larger, robust; ferrugineous or rufo-piceous, elytra with an ill-defined subhumeral and subapical spot or the entire margin somewhat paler; thorax rather more than one-half wider than long, sides rounded, more or less sinuate in front of the hind angles; elytra about one-half wider than the thorax, the sutural stria deep, rarely with traces of a second stria; legs testaceous. Length .12–.15 inch. **obesulus** Lec.

10. Robust; ferrugineous; elytra with a deep sutural stria, a finer abbreviated second stria and rarely with traces of a third; legs testaceous. Length .10–.13 inch................................**ferrugineus** Dej.

5. **T. granarius** Dej.—Form robust. Color variable, usually piceous or nearly black, the elytra more or less brownish and somewhat translucent, sometimes rufo-piceous or ferrugineous, the head and thorax darker; surface very shining. Head scarcely narrower than the thorax at apex; eyes large and prominent; antennæ scarcely one-half as long as the body, fuscous, the basal joints testaceous; palpi dark rufous. Prothorax subquadrate, rather more than one-half wider than long, scarcely narrower at base than apex; apex truncate; median line fine, abbreviated at each end; anterior transverse impression obsolete, the posterior deep, finely punctulate, not tripunctate at middle; basal impressions distinct; base truncate; sides with the margin very narrowly reflexed, arcuate in front, oblique behind, feebly sinuate immediately in front of the hind angles, which are subrectangular, with a very short, fine carina. Elytra oblong-oval, less than one-half wider than the thorax; sutural stria deep, impunctate, not attaining the base; the other dorsal striæ obsolete; dorsal punctures small, the first slightly in front of, the second slightly behind, the middle. Body beneath piceous or rufo-piceous, the thorax usually more or less tinged with brown. Legs testaceous. Length .07–.08 inch; 1.75–2 mm.

The sinuation in front of the hind angles is variable, being situated very close to the angle, and in some specimens so feeble as to be with difficulty discerned. In these the hind angles would be better described as obtuse. In the other extreme, however, where it is most strongly marked, they are decidedly rectangular. The two are connected by numerous gradations in the series before me.

This pretty little species seems nearly related to *incurvus*. Its very robust and convex form and the form of the thorax will serve, however, to separate it. The ill-defined elytral vitta, which is almost always to be seen in the latter species, is here entirely wanting.

It occurs from Canada and the New England States southward to Florida and westward to Nebraska.

6. **T. fuscicornis** Chaud.—Form elongate, very convex. Color piceous, slightly tinged with rufous, shining. Head as wide as the thorax at apex; eyes large, prominent; antennæ less than one-half the length of the body, fuscous, the basal joints testaceous; palpi rufo-testaceous. Prothorax subquadrate, as wide at base as apex, about one-half wider than long; apex truncate; anterior transverse impression obsolete, the posterior rather feebly impressed, finely punctulate and not tripunctate at middle; median line very fine, abbreviated at each end; basal impressions small; base truncate; sides with the margin narrowly reflexed, strongly arcuate in front, oblique behind; hind angles obtuse, not carinate. Elytra slightly wider than the thorax, oblong-oval, elongate, with a moderately deep, impunctate, sutural stria, which does not attain the base, the other dorsal striæ obsolete; first dorsal puncture about one-fourth from base, the second slightly behind the middle. Body beneath rufo-piceous, the head and thorax slightly paler, as are also the last segments of the abdomen; epipleuræ dark rufous. Legs testaceous. Length .10 inch; 2.5 mm.

Most nearly related to *granarius*, but more elongate and larger, with the posterior transverse impression feeble. *T. gemellus* Casey is without doubt synonymous.

The above description was taken from a unique in the LeConte collection received from Chaudoir.

Described by Baron Chaudoir from Louisiana.

7. **T. incurvus** Say.—Form elongate, moderately convex. Color varying from rufo-piceous to nearly black, shining, the elytra usually with an ill-defined pale vitta extending from the humerus nearly to the apex and dilated at each end, sometimes interrupted at middle, being then represented by a humeral and subapical spot Head as wide as the thorax at apex; eyes large, prominent; antennæ rather less than one-half the length of the body, the basal joints testaceous, the outer ones more or less fuscous. Prothorax quadrate, about one-half wider than long, distinctly wider at base than apex; apex truncate; anterior transverse impression obsolete; median line very fine, abbreviated at each end; posterior transverse impression deep, distinctly punctulate, not tripunctate at

middle; basal impressions deep; base truncate; sides slightly arcuate in front, feebly sinuate behind, the margin very narrowly reflexed; hind angles rectangular, with a very short, fine carina. Elytra slightly elongate, oblong-ovate, slightly wider than the thorax, with a moderately deep, impunctate, sutural stria, which does not attain the base; dorsal punctures small, the first slightly in front of, the second slightly behind, the middle. Body beneath piceous or rufo piceous. Legs testaceous. Length .07-.10 inch; 1.75-2.5 mm.

This species bears considerable resemblance to *nebulosus* Chaud., but differs essentially by the absence of the three large punctures at the middle of the posterior transverse impression of the thorax (Plate VI, fig. 10) and by its less robust form. Great variation in color is shown in a large series, and the markings of the elytra, although always ill-defined, vary in distinctness. Rarely they are almost completely wanting. In a few specimens examined, very faint traces of a second stria are discernable.

It is frequently found in ants' nests, although far from strictly myrmecophilous in its habits. All that I have seen thus collected were taken in the nests of *Formica exsectoides* Fovel.

It has a very wide range of distribution, extending from Canada and the New England States southward to Florida and Texas and westward to the Pacific coast, specimens having been seen from British Columbia, Washington and Oregon.

8. **T. dolosus** Lec.—Form very elongate, slightly convex. Color testaceous or pale rufous, shining. Head as wide as the thorax at apex; eyes large, prominent; antennæ less than one-half the length of the body, testaceous, the outer joints scarcely darker; palpi testaceous. Prothorax quadrate, about one-half wider than long, slightly wider at base than apex; apex truncate; median line fine, abbreviated at each end; anterior transverse impression obsolete, the posterior deep, finely punctate, not tripunctate at middle; basal impressions small, moderately deep; base truncate; sides with the margin very narrowly reflexed, slightly rounded in front, feebly sinuate behind; hind angles rectangular, very finely carinate. Elytra elongate, oblong-elliptical, nearly one-half wider than the thorax, with a deep, impunctate, sutural stria, which does not attain the base, the other dorsal striæ obsolete; dorsal punctures small, the first slightly in front of, the second slightly behind, the middle. Body beneath pale rufous. Legs testaceous. Length .09-.11 inch; 2.25-2.75 mm.

Most closely allied to *incurvus*, but distinct by its much more elongate form and uniform pale color.

It occurs in the Eastern and Southern States, Iowa, Missouri, Kansas, Texas, Colorado, New Mexico and Arizona.

9. **T. rapax** Lec.—Form elongate, moderately convex. Color rufous or rufo-testaceous, shining. Head as wide as the thorax at apex; eyes large, prominent; antennæ less than one-half as long as the body, pale fuscous, testaceous at base;

palpi testaceous. Prothorax scarcely one-half wider than long, as wide at base as apex, subquadrate; anterior transverse impression obsolete, the posterior deep, finely punctulate, not tripunctate at middle; median line fine, abbreviated before and behind; basal impressions distinct; base truncate; sides with the margin very narrowly reflexed, slightly arcuate in front, feebly sinuate behind; hind angles subrectangular, very finely carinate. Elytra elongate, nearly elliptical, slightly wider than the thorax; sutural stria deep, impunctate, the other dorsal striæ obsolete; first dorsal puncture slightly in front of, the second slightly behind, the middle. Body beneath rufous or rufo-piceous. Legs testaceous. Length .08-.09 inch; 2-2.5 mm.

So closely allied to the next species as in some instances to be with difficulty separable. The only difference which can be relied upon is to be found in the absence in *rapax* of the three punctures at the middle of the base of the thorax on the posterior transverse impression. These are present in *audax,* although more feebly marked than in the other species in which they occur.

It is known to me only from California and Arizona.

10. **T. audax** Lec.

This species resembles the preceding so closely as to require no special description. In fact, apparently the only constant difference between them is to be seen in the posterior transverse impression of the thorax, which is feebly tripunctate at middle in the present species, while it is not at all so in *rapax.* The punctures are less clearly marked than in the other species in which the thorax is similarly impressed, and, as the transverse impression is finely punctate, both in this species and in *rapax,* great care must be taken in separating them. In comparing the two it will be observed that in the latter the sides of the thorax are usually slightly more sinuate behind, and the hind angles consequently more nearly rectangular. The difference, however, is not constant. The basal impressions of the thorax are generally slightly smaller in *audax* than in *rapax.*

From *dolosus,* which it closely resembles, it differs by the thorax proportionally less wide at base than apex, the tripunctate transverse impression, and by its slightly more convex form.

In color it varies from rufous to rufo-piceous, specimens being sometimes seen in which the elytra have a very ill-defined humeral spot and another near the apex slightly paler. Its size is the same as *rapax.*

It occurs in California and Arizona, and examples have also been seen from El Paso, Tex., and from Utah and Western Colorado.

11. **T. anthrax** Lec.—Form moderately elongate, convex. Color black, shining. Head as wide as the thorax at apex; eyes moderately large and prominent; antennæ less than one-half as long as the body, piceous, the basal joints paler; palpi rufo-piceous. Prothorax subquadrate, about one-half wider than long, very slightly wider at base than apex; apex truncate; anterior transverse impression obsolete; median line fine, abbreviated in front and behind; posterior transverse impression deep, finely punctulate, tripunctate at middle; basal impressions deep; base truncate; sides rounded in front, slightly sinuate behind, the margin very narrowly reflexed; hind angles rectangular, finely carinate. Elytra oblong-oval, less than one-half wider than the thorax, with a deep sutural stria and from one to three abbreviated dorsal striæ; striæ impunctate; first dorsal puncture about one-third from base, the second about one-third from apex. Body beneath black, shining. Legs rufous or rufo-piceous, the femora darker. Length .08-.11 inch; 2-2.75 mm.

A well-marked and easily recognizable species. The posterior dorsal puncture of the elytra is placed somewhat further behind the middle than is usual in the present group.

It occurs in California.

12. **T. nebulosus** Chaud.—Form robust. Color varying from ferrugineous to rufo-piceous, shining, the elytra usually with the sides and apex somewhat paler. Head as wide as the thorax at apex; eyes large, prominent; antennæ nearly one-half as long as body, pale fuscous, the basal joints testaceous. Prothorax subquadrate, wider at base than apex, scarcely one-half wider than long; apex truncate; anterior transverse impression obsolete, the posterior distinct, finely punctate, tripunctate at middle; median line very fine, abbreviated before and behind; basal impressions distinct; base truncate; sides with the margin very narrowly reflexed, slightly rounded to behind the middle, feebly sinuate in front of the hind angles, which are rectangular and feebly carinate. Elytra slightly wider than the thorax, oblong-oval, with the sutural stria deep, impunctate, not attaining the base, the other dorsal striæ obsolete; first dorsal puncture about one-fourth from base, the second very slightly behind the middle. Body beneath rufo-piceous or ferrugineous. Legs testaceous. Length .08-.11 inch; 2-2 75 mm.

This seems to be a well-marked species, subject to but slight variation. Its affinities are towards *vivax* on the one hand and *incurvus* on the other. It is not, as a rule, very common in collections, and large specimens of the latter are often referred to it. These may at once be distinguished from the present species by the absence of the three large punctures at the middle of the posterior transverse impression of the thorax.

It occurs in Louisiana, Texas, Colorado and Utah. A single example labelled "Montreal, Can.," has been seen.

13. **T. liebecki** n. sp.—Form very robust. Color dark rufo-piceous, very shining, the elytra gradually paler towards the tip. Head as wide as the thorax at apex; eyes large, prominent; antennæ scarcely one-half as long as the body,

pale fuscous, the basal joints rufous, second and third subequal; palpi rufous. Prothorax very convex, subquadrate, twice as wide as long, wider at base than apex; apex truncate; anterior transverse impression obsolete, the posterior deep, tripunctate at middle; median line fine, abbreviated at each end; basal impressions rather small, deep; sides with the margin narrowly reflexed, strongly arcuate nearly to base, sinuate immediately in front of the hind angles, which are rectangular and finely carinate. Elytra slightly wider than the thorax, oblong-oval, with a sutural and two dorsal striæ, also sometimes with traces of a fourth stria; striæ impunctate, the two inner much deeper, the sutural only attaining the apex; dorsal punctures on the third stria, the first slightly in front of, the second slightly behind, the middle. Body beneath piceous, the abdomen more or less tinged with rufous. Legs rufous. Length .08-.10 inch; 2-2.5 mm.

Very distinct in facies from any species in our fauna. Its very robust form, together with the characters above given, will, I think, serve to distinguish it.

Four specimens, two of each sex, are known to me. Of these one is in the collection of the late Dr. Horn, now a part of that of the American Entomological Society, one in the LeConte collection, one in that of Mr. Charles Liebeck, and the other in my own cabinet. For the latter I am indebted to Mr. Liebeck, whose name I take pleasure in assigning to the species as a slight token of gratitude for many favors.

It occurs in Texas.

14. **T. xanthopus** Dej.—Form robust. Color piceous or nearly black, shining, the elytra usually paler at tip. Head as wide as the thorax at apex; eyes large, prominent; antennæ about one-half the length of the body, piceous, the basal joints testaceous; palpi rufous. Prothorax as wide at base as apex, subquadrate, nearly twice as wide as long; apex truncate; anterior transverse impression obsolete, the posterior distinct, tripunctate at middle; median line very fine, abbreviated before and behind; basal impressions broad, deep; base truncate; sides with the margin very narrowly reflexed, strongly arcuate in front, oblique behind, at most but feebly sinuate immediately in front of the hind angles, which are subobtuse, but not rounded, not carinate. Elytra distinctly wider than the thorax, oblong-oval, with from two to four dorsal striæ, the sutural only attaining the apex; striæ impunctate; dorsal punctures distinct; intervals convex. Body beneath piceous. Legs testaceous. Length .07-.09 inch; 1.75-2.25 mm.

The striation of the elytra varies as indicated above. Dejean describes the elytra as "striis duabus dorsalibus distinctis," and while this applies to many examples, others occur with three or even four well-marked striæ. As such examples are found throughout its entire range, and are separable by no other characters, we can regard them only as individual variations of one species. The coloration also varies, and, although the elytra are usually paler at tip, they are sometimes entirely piceous or black. In a large series it will be observed that the sides of the thorax, although usually not sinuate behind, are in some individuals feebly so immediately in front of the hind angles, which thus become more nearly rectangular. This is seen only when the thorax is slightly separated from the base of the elytra. Such specimens are often difficult to distinguish from small examples of *capax*, especially if the elytra are unicolorous.

It is widely distributed, occurring from Massachusetts to Florida, and westward to Texas and New Mexico. Mr. H. W. Wenzel writes me that in New Jersey he has taken it in cranberry-bogs.

15. **T. capax** Lec.—Form rather elongate, convex. Color black, very shining. Head as wide as the thorax at apex; eyes large and prominent; antennæ less than one-half as long as the body, dark fuscous or piceous, paler at base; palpi testaceous. Prothorax subquadrate, wider at base than apex, about one-half wider than long; apex truncate; anterior transverse impression obsolete, the posterior deep and distinctly tripunctate at middle; median line very fine, abbreviated before and behind; basal impressions broad, deep; base truncate; sides strongly rounded to behind the middle, sinuate for a short distance in front of the hind angles, which are rectangular and finely carinate. Elytra oblong-oval, less than one-half wider than the thorax, with the two inner striæ deep, the third feebly marked, the sutural only attaining the apex; striæ impunctate, the third with the first dorsal puncture about one-fourth from base, the second slightly behind the middle; the two inner intervals slightly convex. Body beneath piceous, the abdomen slightly paler. Legs rufo-testaceous, the femora usually slightly darker. Length .09-.12 inch; 2.25-3 mm.

This species seems most nearly related to *xanthopus* Dej., than which it is usually larger and more elongate, with the thorax wider at base than apex, and the hind angles more prominent and very finely carinate. Small specimens might easily be confused with larger examples of the latter species, and considerable care is sometimes required in separating them.

It was described by LeConte from the District of Columbia. Specimens have also been seen from Anglesea, N. J. (Liebeck and H. W. Wenzel), Biscayne, Fla. (Mrs. Slosson), Missouri and Iowa City, Iowa (Wickham). It is not common in collections.

16. **T. vivax** Lec.—Form convex. Color reddish brown, rarely rufo-piceous, shining, the elytra paler at sides and tip. Head as wide as the thorax at apex; eyes large, prominent; antennæ about one-half the length of the body, testaceous, the outer joints fuscous; palpi testaceous. Prothorax subquadrate, distinctly wider at base than apex, rather more than one-half wider than long; apex truncate; anterior transverse impression obsolete, the posterior distinct,

finely punctulate, tripunctate at middle; median line fine, abbreviated at each end; basal impressions broad, deep; base truncate; sides rounded in front, nearly parallel and feebly sinuate behind, the margin narrowly reflexed; hind angles rectangular, with a short, fine carina. Elytra oblong-oval, nearly one-half wider than the thorax, with the three or four inner striæ distinct, the two inner deeper, all but the sutural abbreviated behind; striæ impunctate, the third with the first dorsal puncture slightly in front of, the second slightly behind, the middle; intervals nearly flat, the two inner feebly convex. Body beneath ferrugineous or rufo-piceous, the last segments of the abdomen sometimes paler. Legs testaceous. Length .09-.11 inch; 2.25-2.75 mm.

Most nearly allied to *tripunctatus* Say, but distinct by its more convex form, and by the form of the thorax. The two are often confused in collections.

It occurs in the Eastern States, extending westward to Iowa.

17. **T. tripunctatus** Say (Plate VI, fig. 4).—Form rather elongate, subdepressed. Color brown or piceous, shining, the elytra slightly paler at the sides. Head as wide as the thorax at apex; eyes large, prominent; antennæ about one-half as long as the body, fuscous, the basal joints paler; palpi testaceous. Prothorax subquadrate, about one-half wider than long, slightly wider at base than apex; apex truncate; anterior transverse impression obsolete, the posterior deep, finely punctate, tripunctate at middle; median line fine, abbreviated at each end; basal impressions distinct; base truncate; sides rounded in front, slightly sinuate behind, the margin narrowly reflexed; hind angles rectangular, with a short, fine carina. Elytra oblong-ovate, about one-half wider than the thorax, with four or five distinct striæ, the three inner deep, the first only entire; striæ impunctate; dorsal punctures distinct, the first slightly in front of, the second slightly behind, the middle; intervals feebly convex. Body beneath reddish brown or piceous. Legs testaceous. Length .11-.13 inch; 2.75-3.25 mm.

A large and well-marked species, less convex than the others of the group. From *vivax*, to which it is most nearly related, it may, in addition, be distinguished by its somewhat larger size and more elongate form, with the thorax more narrowed behind. The striæ of the elytra are usually more deeply impressed than in the latter species, but this is subject to some variation, the outer two being sometimes nearly effaced.

Known to me from Canada, New Hampshire, Massachusetts, New York, New Jersey, Pennsylvania, Virginia, Tennessee, Iowa and Texas.

18. **T. obesulus** Lec.—Form robust. Color varying from ferrugineous to rufo-piceous, shining, the elytra usually with either a subhumeral and a subapical spot or the entire margin paler. Head as wide as the thorax at apex; eyes large, prominent; antennæ nearly one-half as long as the body, rufo-testaceous, the outer joints somewhat darker; palpi rufo-testaceous. Prothorax subquadrate, rather more than one-half wider than long, wider at base than apex;

apex nearly truncate; anterior transverse impression nearly obsolete. the posterior deep, tripunctate at middle; median line fine, abbreviated before and behind; basal impressions broad, deep; base truncate; sides with the margin narrowly, but distinctly, reflexed, rounded, more or less sinuate in front of the hind angles, which are rectangular and carinate. Elytra oblong-oval, about one-half wider than the thorax, with a deep, impunctate sutural stria and sometimes with traces of a second stria; first dorsal puncture slightly in front of, the second slightly behind, the middle. Body beneath ferrugineous or rufo-piceous. Legs testaceous. Length .12-.15 inch; 3-3.75 mm.

Readily distinguishable from the others of the group by its more robust form and larger size. From *ferrugineus*, which in general facies it most nearly resembles, it is at once recognizable by its impunctate sutural stria and more prominent eyes. The sinuation of the sides of the thorax varies from moderately deep to feeble, and with it the hind angles vary from scarcely rectangular to almost subacute, being more prominent in specimens in which the sinuation is deepest. The angular carina is also more marked in some examples than in others. The spots on the elytra, when present, are not well defined, and in specimens in which the margin is paler, the pale color of the sides gradually merges into the darker color of the disk.

It occurs in Arizona and California.

19. **T. ferrugineus** Dej.—Form robust. Color ferrugineous, shining. Head slightly elongate, as wide as the thorax at apex; eyes rather small, somewhat flattened; antennæ scarcely one-half as long as the body, pale fuscous, more or less testaceous at base; palpi testaceous. Prothorax about one-half wider than long, wider at base than apex, subquadrate; apex very slightly emarginate; anterior transverse impression obsolete, the posterior distinct, finely punctate, tripunctate at middle; median line distinct, abbreviated at each end; basal impressions broad, moderately deep; base truncate; sides with the margin narrowly reflexed, slightly arcuate in front, feebly sinuate behind; hind angles rectangular, not carinate. Elytra more than one-half wider than the thorax, nearly oval, convex, with a sutural and one fine, abbreviated dorsal stria, rarely also with traces of a third; sutural stria distinctly punctulate to behind the middle; first dorsal puncture about one-fourth from base, the second very slightly behind the middle. Body beneath ferrugineous. Legs testaceous. Length .10-.13 inch; 2.5-3.25 mm.

A very distinct species, easily recognizable from the others of the group. The superficial resemblance between it and the next is, however, quite strong, but the two may be distinguished by several characters besides the difference in the structure of the mentum, on account of which the latter is placed in a separate group. Among these the most marked are the greater length of the frontal grooves, the proportionally longer third joint of the antennæ and the more numerous, punctured striæ of *frontalis*, and the tripunctate posterior transverse impression of the thorax of the present species. The thorax is also less narrowed behind than in *frontalis*.

So far as I am aware it is entirely myrmecophilous in its habits, occurring in the nests of *Lasius umbratus* Nyl. var. *minutus* Em.

It is known to me from Massachusetts, New York, Pennsylvania, the District of Columbia, North and South Carolina, Ohio, Tennessee, Iowa and Missouri.

Group V. frontalis.

Form convex. Head not inserted in the thorax to the eyes; mentum with two large forameniform punctures behind the tooth; antennæ with the third joint slightly longer than the second. Thorax narrowly margined, the margin not translucent. Elytra rounded at tip, with two dorsal punctures on the third stria, the second only slightly behind the middle; recurved portion of the sutural stria nearly parallel to the suture, not hooked at tip; marginal stria broadly interrupted at middle.

The males have the first two joints of the anterior tarsi slightly dilated.

This group seems intermediate in many respects between the preceding and the next. With it begins a series having two large forameniform punctures on the mentum behind the base of the tooth. These are represented on Plate VI, fig. 13.

But one species occurs in our fauna. In facies it resembles quite closely *T. ferrugineus* of the last group.

20. **T. frontalis** n. sp.—Form convex. Color ferrugineous or rufotestaceous, shining. Head elongate, as wide as the thorax at apex; frontal grooves long, deep, extending posteriorly to the hind margin of the eye; eyes moderate, slightly flattened; antennæ about one-half the length of the body, pale fuscous, the basal joints more or less testaceous; palpi testaceous. Prothorax subquadrate, about one-half wider than long, wider at base than apex; apex truncate; anterior transverse impression distinct, the posterior deep, punctate, not tripunctate at middle; median line distinct, extending between the transverse impressions; basal impressions broad, deep; base truncate; sides with the margin narrowly reflexed, more widely towards the base, arcuate in front, sinuate behind; hind angles rectangular, prominent, not carinate. Elytra more than one-half wider than the thorax, nearly oval, convex, with a sutural and three abbreviated dorsal striæ; striæ distinctly punctulate, becoming shorter and less deep externally, the third with the first dorsal puncture about one-fourth from base, the second slightly behind the middle: intervals feebly convex. Body beneath ferrugineous. Legs testaceous. Length .11-.13 inch; 3.25-3.75 mm.

One of the best marked species of the genus. The only other with which it can possibly be confused is *ferrugineus* Dej., from which it differs by numerous structural characters of importance.

For a long time it was known to me only by a somewhat mutilated unique from Eastern Massachusetts, but through the kindness of Mr. Charles Liebeck I have recently had an opportunity of studying several other specimens, and to his generosity I am indebted for the only perfect examples in my cabinet.

It has thus far been taken in Eastern Massachusetts, at Peekskill, N. Y. and at Philadelphia, Pa.

Group VI. ephippiatus.

Form elongate. Head not inserted in the thorax to the eyes; mentum with two large forameniform punctures behind the tooth; antennæ with the second and third joints subequal. Thorax with the margin not translucent. Elytra rounded, distinctly striate, with two small dorsal punctures on the third interval; marginal stria deep, entire.

The anterior tarsi are similar in the sexes.

This group is the equivalent of *Pericompsus*, a genus erected by LeConte for the reception of *T. ephippiatus* Say.* As suggested by Dr. Horn in his monograph of the Carabidæ,† the characters on which it is based are rather those of a group of species than of generic value. The species composing it differ primarily from those of the other groups by the deep marginal stria, which is not interrupted or less deep at middle. The elytral striæ are more numerous than in most other *Tachys*, and in all our species are distinctly punctate, a character of comparatively rare occurrence in the genus. A larger number than usual are entire, so that the appearance of the recurved sutural stria, so marked in nearly all the groups, is here almost lost, the fifth being grooved at apex, as is usual in *Bembidium*.

Our three species may thus be separated:

Thorax and elytra broadly margined, surface subopaque.
  Thorax nearly as long as wide, strongly narrowed behind, the anterior angles slightly prominent and acute. Length .12-.16 inch...**sellatus** Lec.
Thorax and elytra narrowly margined; surface shining.
  Convex; thorax slightly wider than long, distinctly narrower at base than apex; elytra very distinctly wider than the thorax, sides arcuate. Length .10-.13 inch..........................**ephippiatus** Say.

---

* Ann. Lyc., 1851-2, v, p. 191.

† Trans. Am. Ent. Soc., 1881, ix, p. 134.

Subdepressed, very elongate; thorax one-half wider than long, slightly narrower at base than apex; elytra slightly wider than the thorax, subparallel. Length .10-.13 inch........................**lætulus** Lec.

21. **T. sellatus** Lec.—Form slender, elongate, convex. Color rufo-testaceous, subopaque, the elytra with a large, common, more or less clearly defined discal spot fuscous or piceous. Head scarcely as wide as the thorax; frontal grooves distinct, extending backwards to the hind margin of the eye; eyes large, prominent; antennæ about one-half the length of the body, ferrugineous, the outer joints scarcely darker; palpi rufo-testaceous. Prothorax subcordate, nearly as long as wide, widest in front of the middle, very distinctly narrower at base than apex; apex slightly emarginate, the anterior angles slightly prominent and acute; anterior transverse impression obsolete, the posterior rather feeble; median line distinct, entire; basal impressions distinct, linear; base truncate; sides broadly margined, arcuate in front, oblique behind, distinctly sinuate in front of the hind angles, which are rectangular, not carinate. Elytra more than one-half wider than the thorax, oblong oval, broadly margined, elongate, with six deep dorsal striæ; striæ deeply punctate, subentire, the fifth slightly grooved at tip; intervals convex, the third with the first dorsal puncture about one-fourth from base, the second about the middle. Body beneath rufo-piceous, the abdomen slightly paler. Legs rufo-testaceous. Length .13-.16 inch; 3.25-4 mm.

Very distinct from the others of the group.

The discal spot on the elytra is subject to some variation. It is usually margined posteriorly and sometimes also anteriorly with piceous, and is often not clearly defined. In most specimens examined the suture is also infuscate.

Occurs in Arizona and at Yuma, Cal.

22. **T. ephippiatus** Say.—Form slender, elongate, convex. Color rufo-testaceous, shining, the elytra with a large, common discal spot and sometimes with a subbasal one varying from rufo-piceous to nearly black. Head scarcely narrower than the thorax; frontal grooves distinct, extending posteriorly to the hind margin of the eye; eyes large, prominent; antennæ less than one-half as long as the body, rufo-testaceous, the outer joints scarcely darker; palpi testaceous. Prothorax subcordate, slightly wider than long, narrower at base than apex; apex nearly truncate, the anterior angles not prominent; anterior transverse impression feeble or obsolete, the posterior deep, punctate and slightly rugose; median line fine, abbreviated at each end; basal impressions small; base truncate; sides with the margin very narrowly reflexed, arcuate in front, sinuate behind; hind angles rectangular, not carinate. Elytra elongate, oblong-oval, about one-half wider than the thorax, less widely margined than in *sellatus*, with six moderately deep dorsal striæ; striæ distinctly punctate, somewhat less deeply towards the tip, subentire, the fifth deeply grooved at apex; intervals feebly convex, the third with the first dorsal puncture about one-fourth from base, the second slightly behind the middle. Body beneath rufous or rufo-piceous. Legs testaceous. Length .10-.13 inch; 2.5-3.25 mm.

Readily distinguishable from the other two species of the group by the characters given above. The extent and depth of color ,of the dark markings of the elytra varies to a considerable degree, the elytra varying from testaceous, faintly clouded on the disk with dusky, to nearly black, broadly margined with testaceous.

It occurs throughout the eastern United States from New England to Texas.

23. **T. lætulus** Lec.—Form slender, elongate, subdepressed. Color nearly as in *ephippiatus*. Head scarcely narrower than the thorax; frontal grooves distinct, extending posteriorly as far as the hind margin of the eye; eyes large, prominent; antennæ less than one-half the length of the body, rufo-testaceous, the outer joints scarcely darker; palpi testaceous. Prothorax sub-quadrate, about one-half wider than long, scarcely narrower at base than apex; apex truncate; anterior transverse impression feeble or nearly obsolete; median line fine, abbreviated before and behind; posterior transverse impression distinct, punctate; basal impressions very small, feebly marked; base truncate; sides with the margin narrowly reflexed, arcuate in front, sinuate behind; hind angles rectangular, finely carinate. Elytra very slightly wider than the thorax, elongate, oblong-ovate, subparallel, with six moderately fine dorsal striæ; margin narrowly reflexed; striæ subentire, finely punctate, slightly less deeply towards the tip, the fifth slightly grooved at apex; intervals flat, the third with the first dorsal puncture about one-fourth from base, the second slightly behind the middle. Body beneath rufo-piceous or piceous, the head and thorax paler. Legs testaceous. Length .10-.13 inch; 2.5-3.25 mm.

Resembles the preceding most closely, but is abundantly distinct by its more parallel, subdepressed form and by the form of the thorax.

Although, by no means subopaque, the surface is less shining than in *ephippiatus*. Under high power it is seen to be very finely alutaceous, especially on the elytra, and a slightly pearly lustre is thus imparted.

It is known to me only from Arizona.

Group VII. lævus.

Head not inserted in the thorax to the eyes; mentum with two large, forameniform punctures behind the tooth. Thorax narrowly margined, the margin not translucent. Elytra rounded at tip, with two dorsal punctures on the third interval very close to the third stria; recurved portion of the sutural stria very short, not hooked at tip, apparently representing the apical end of the abbreviated third stria; marginal stria broadly interrupted at middle, obsolete in *lævus*, in which the marginal punctures assume unusual prominence.

In this group I have included three species, which agree in the above characters. Of these, the first (*trechiformis*) has the second and third joints of the antennæ subequal, as in most species of *Tachys*, while in the other two the second joint is distinctly longer than the third. In *lævus* (Plate VI, fig. 14) the antennæ are almost moniliform, an approach to this form being seen in *rufotestaceous*, while in *trechiformis* they are of the form usually seen in the genus. Were the species more numerous the group might easily be divided into two on the structure of the antennæ, but as they are so few I cannot see that any advantage would be gained by so doing. All agree in having the dorsal punctures of the elytra on the third interval very close to the third stria, in fact, being so close in *trechiformis* as to appear rather like inward dilations of the stria itself. An elytron of *T. lævus* is shown on Plate VI, fig. 6.

The first two joints of the anterior tarsi are slightly dilated in the males.

The species may thus be separated:

Small species; antennæ with the second joint longer and stouter than the third; thorax narrower at base thax apex..................................2.

Larger; antennæ with joints 2–3 subequal; elongate; rufo-testaceous; thorax as wide at base as apex, hind angles rectangular; striæ of elytra obsoletely punctulate. Length .11 inch..........**trechiformis** n. sp.

2. Pale rufo-testaceous; elongate; thorax with the sides sinuate behind, hind angles rectangular; striæ of elytra finely punctulate; marginal stria with the apical portion distinct, the basal represented by setigerous punctures. Length .06–.07 inch............**rufotestaceus** n. sp.

Piceous, often more or less tinged with rufous; less elongate; thorax with the sides at most obsoletely sinuate behind, hind angles obtuse; striæ of elytra very fine, impunctate; marginal stria obsolete, represented by setigerous punctures. Length .05–.06 inch.............**lævus** Say.

24. **T. trechiformis** n. sp.—Form slender, elongate, sub-depressed. Color rufo-testaceous, shining. Head scarcely narrower than the thorax; frontal grooves short, extending posteriorly scarcely to the middle of the eye; eyes large and prominent; antennæ less than one-half as long as the body, rufo-testaceous, the second and third joints subequal; palpi testaceous, the last joint very small. Prothorax subquadrate, about one-half wider than long, as wide at base as apex; apex truncate; anterior transverse impression feeble, the posterior distinct, finely punctulate; median line fine, extending between the transverse impressions; basal impressions moderately deep; base truncate; sides with the margin very narrowly reflexed, arcuate in front, sinuate behind; hind angles rectangular, not carinate. Elytra elongate, oblong-elliptical, subparallel, slightly wider than the thorax, finely striate; striæ obsoletely punctulate, the three inner deeper, the fourth and fifth feeble, all but the sutural abbreviated towards the apex; marginal stria interrupted at middle, the basal and apical portions distinct; first dorsal puncture about one-third from base, the second about one-third from apex; intervals flat. Body beneath and legs pale rufotestaceous. Length .11 inch: 2.75 mm.

Very distinct from any species known to me. In facies it somewhat recalls a minute *Trechus*. The subulate palpi seem here to attain their greatest development, the last joint of the maxillary being almost obsolete, and that of the labial very small.

Described from a single male from the Verde River, Arizona, collected by the late Dr. H. G. Griffith, for which I am indebted to the kindness of Mr. Chas. Liebeck.

25. **T. rufotestaceus** n. sp.—Form elongate, depressed. Color pale rufotestaceous. Head as wide as the thorax at apex; frontal grooves short, deep, extending posteriorly scarcely to the middle of the eye; eyes moderately large, slightly flattened; antennæ less than one-half the length of the body, testaceous, the outer joints darker, the second longer than the third, joints 3–10 sub-equal, the eleventh longer and acute at tip; palpi testaceous. Prothorax very slightly narrower at base than apex, subquadrate, about one-half wider than long; apex truncate; transverse impressions distinct, the anterior strongly arcuate and distant from the apex, the posterior distinctly angulate at middle; median line distinct, extending between the transverse impressions; basal impressions small, distinct; base truncate, very slightly obliquely so each side; sides with the margin narrowly reflexed, arcuate in front, sinuate behind; hind angles rectangular, not carinate. Elytra oblong-ovate, about one-half wider than the thorax, with four dorsal striæ, the two inner deeper; striæ finely punctate, the outer ones abbreviated behind; marginal stria with the apical portion distinct, the basal obsolete and represented by the usual two marginal setigerous punctures; first dorsal puncture about one-third from base, the second about one-fourth from apex. Body beneath rufous or rufotestaceous. Legs testaceous. Length .06–.07 inch; 1.5-1.75 mm.

A very distinct little species. It resembles *lævus* in having the second joint of the antennæ longer than the third, but is easily recognizable by the characters above given.

It occurs in California and Arizona.

26. **T. lævus** Say (Pl. VI., fig. 6).—Form subdepressed. Color piceous, often more or less tinged with rufous. Head large, as wide as the thorax at apex; frontal grooves very short, almost punctiform; eyes moderate, slightly flattened; antennæ submoniliform, less than one-half as long as the body, piceous, the first two joints very pale testaceous, the second stouter and very distinctly longer than the third, joints 3-10 nearly equal, the eleventh much longer and acute at tip; palpi pale testaceous. Prothorax subquadrate, nearly twice as wide as long, slightly narrower at base than apex; apex truncate; transverse impressions distinct, the posterior deeper, the median line very fine or nearly obsolete, extending between them; basal impressions small, deep; base truncate, obliquely so each side; sides with the margin very narrowly reflexed, strongly arcuate in front, oblique, or at most obsoletely sinuate behind; hind angles obtuse, but not rounded, not carinate. Elytra oblong-ovate, about one-half wider than the thorax, with a sutural and from one to three abbreviated dorsal striæ, the latter very fine or nearly obsolete; striæ impunctate; marginal stria obsolete, repre-

sented near the humerus and towards the apex by the usual marginal setigerous punctures; first dorsal puncture about one-third from base, the second about one-fourth from apex. Body beneath piceous, the head and thorax usually paler. Legs testaceous, the femora sometimes darker. Length .05-.06 inch; 1.25-1.5 mm.

A very singular little species and the smallest in our fauna. The structure of the antennæ (Pl. VI, fig. 14) is very curious and unlike that seen in any other species, except *rufotestaceus*, which resembles it in having the second joint longer than the third. The marginal stria of the elytra is obsolete, being represented near the humerus and towards the apex by the usual setigerous punctures, which are to be seen along the margin in most species of *Tachys*, but the presence of which is often obscured by the depth of the marginal stria. In perfect examples of *lævus* the setæ proceeding from these punctures are seen to be unusually long.

It occurs throughout the more eastern portions of the country. Specimens have been seen from Canada, Massachusetts, New York, New Jersey, Pennsylvania, North Carolina, Michigan, Iowa, Missouri, Arkansas and Louisiana.

Group VIII. **vittiger.**

Form more or less depressed. Head not inserted in the thorax to the eyes; mentum with two deep, forameniform punctures behind the tooth; antennæ with the second and third joints subequal. Thorax narrowly margined, the margin not translucent. Elytra rounded at tip, with two dorsal punctures, the first on the third stria, when the latter is present, scarcely in front of the middle, the second at or slightly behind the tip of the recurved portion of the sutural stria, but never enclosed within it; striæ usually feebly marked, impunctate, the sutural only attaining the apex, the latter with the recurved portion parallel to the suture, or nearly so, and hooked at tip; marginal stria broadly interrupted at middle.

In the males the first two joints of the anterior tarsi are more or less dilated.

Most nearly allied to the next group, the only character separating them being the different position of the dorsal punctures. A short study of their position in the different species will, I think, convince one that, while in the present group they really belong on the third stria, in the one containing *proximus*, *corruscus*, etc., their situation is on the fourth interval. In those species in which the outer striæ are feeble or obsolete, the position of the second puncture, with relation to the recurved portion of the sutural stria, that is whether or not it is enclosed within it, will indicate to which group the species should be referred. This is shown on Plate VI, figs. 7 and 8.

Our species are moderately numerous, and several resemble each other very closely. The following table, it is hoped, will assist in their determination :

Eyes large, prominent..2.

Eyes smaller, less convex; pale yellowish-testaceous; thorax distinctly narrower at base than apex; elytra scarcely wider than the thorax, feebly or obsoletely striate. Length .08-.10 inch..............**mordax** Lec.

2. Thorax squarely truncate at base; legs pale..................................3.

Thorax more or less obliquely truncate each side at base......................5.

3. Thorax slightly narrower at base than apex ....4.

Thorax very distinctly narrower at base than apex; head nearly black, thorax piceous or rufopiceous, elytra pale testaceous, with the suture slightly infuscate; form very elongate, subparallel; elytra scarcely wider than the thorax, which is slightly wider than long. Length .09-.10 inch **virgo** Lec..

4. Less elongate; pale rufotestaceous, the head and thorax scarcely darker; elytra slightly wider than the thorax, which is about one-half wider than long. Length .09-.11 inch..................**pallidus** Chaud.

Piceous or black, the elytra slightly wider than the thorax, with either a vitta varying in breadth and extending nearly to apex, or a subhumeral spot pale, or even entirely black; thorax with the sides slightly sinuate behind, hind angles rectangular. Length .09-.12 inch. **vittiger** Lec.

More robust; color varying from brownish to nearly black, the elytra often with a subhumeral and sometimes a subapical spot pale, the two rarely united to form a longitudinal vitta; elytra one-half wider than the thorax, which has the sides sinuate behind and the hind angles rectangular. Length .09-.12 inch..................**occultator** Casey.

5. Slightly broader than *vittiger;* color dark piceous or black, the elytra sometimes with a pale longitudinal vitta; thorax slightly narrower at base than apex, sides not sinuate behind, hind angles obtuse, but not rounded; elytra distinctly wider than the thorax; femora piceous or black, tibiæ and tarsi paler. Length .08-.10 inch........**corax** Lec.

More elongate; color black; thorax more narrowed behind, sinuate in front of the hind angles, which are subrectangular; elytra scarcely wider than the thorax; legs pale. Length .09 inch........**misellus** Laf.

Broader; color piceous, the elytra with the sutural region, especially towards the base, slightly tinged with rufous; thorax as wide at base as apex, the hind angles very obtuse and rounded; elytra about one-half wider than the thorax; legs pale. Length .09 inch..**bradycellinus** n. sp.

27. **T. mordax** Lec.—Form elongate, depressed. Color pale testaceous, shining. Head large, as wide as the thorax at apex; frontal grooves distinct, extending posteriorly behind the middle of the eye; eyes moderate, somewhat flattened; antennæ about one-half as long as the body, testaceous; palpi testaceous. Prothorax subquadrate, nearly one-half wider than long, distinctly narrower at base than apex; apex truncate; anterior transverse impression obsolete, the posterior distinct; median line fine, abbreviated at each end; basal impressions small, moderately deep; base truncate; sides with the margin narrowly reflexed, arcuate in front, sinuate behind; hind angles rectangular, not carinate. Elytra scarcely wider than the thorax, subparallel, with the first, second and third striæ feebly impressed or nearly obsolete, the recurved portion of the sutural slightly oblique and very strongly hooked at tip; first dorsal puncture about the middle, the second at the tip of the recurved portion of the sutural stria. Body beneath and legs testaceous. Length .08–.10 inch; 2–2.5 mm.

Distinct from the others of the group by the smaller and less prominent eyes.

It was described by LeConte from the Valley of the Colorado River. Other specimens have been seen from California, Arizona and Salt Lake Valley, Utah.

28. **T. virgo** Lec. Form elongate, depressed. Head piceous or nearly black, prothorax piceous or rufopiceous, elytra very pale testaceous, with the suture and an ill-defined discal spot more or less infuscate. Head large, scarcely narrower than the thorax; frontal grooves extending posteriorly to the middle of the eye; eyes large, prominent; antennæ scarcely one-half as long as the body, testaceous, the outer joints slightly fuscous; palpi testaceous. Prothorax slightly wider than long, narrower at base than apex, subquadrate; apex truncate; median line very fine, abbreviated at each end; anterior transverse impression obsolete, the posterior distinct; basal impressions very small; base truncate; sides with the margin very narrowly reflexed, slightly rounded in front, sinuate behind; hind angles rectangular, not carinate. Elytra slightly wider than the thorax, elongate, subparallel, very finely striate. the two inner striæ deeper, the third and fourth nearly obsolete, the other dorsal striæ wanting; first dorsal puncture about the middle, the second at tip of the recurved portion of the sutural stria; intervals nearly flat. Body beneath piceous. Legs testaceous. Length .09–.10 inch; 2.25 2.5 mm.

Resembles most closely *pallidus* Chaud., but the thorax is more narrowed behind and the color of the head and thorax darker. The form is also more elongate, the thorax longer as compared with its width and the elytra narrower as compared with the thorax.

Known to me only from California.

29. **T. pallidus** Chaud.—Form elongate, depressed. Color pale yellowish-testaceous, the head and thorax slightly darker than the elytra, the latter more or less translucent. Head as wide as the thorax at apex; frontal grooves not deeply impressed, extending posteriorly to the middle of the eye; eyes large and prominent; antennæ less than one-half the length of the body, testaceous; palpi testaceous. Prothorax about one-half wider than long, subquadrate, slightly narrower at base than apex; apex nearly truncate; anterior transverse impression obsolete or nearly so; median line very fine, abbreviated at each end; poste-

rior transverse impression distinct; basal impressions small, distinct; base truncate; sides with the margin very narrowly reflexed, arcuate in front, oblique behind, distinctly sinuate in front of the hind angles, which are rectangular, not carinate. Elytra oblong-ovate, subparallel, slightly wider than the thorax, very finely striate; the two inner striæ usually deeper, the third and fourth feeble, the outer obsolete; first dorsal puncture about the middle, the second at the tip of the recurved portion of the sutural stria; intervals flat. Head and thorax beneath rufotestaceous, the abdomen piceous. Legs testaceous. Length .09–.11 inch; 2.25–2.75 mm.

This species bears a close resemblance in general facies to *T. mordax* Lec., but may be distinguished by its larger and more prominent eyes, and by the thorax less narrowed behind.

Described by Chaudoir from Texas. It is known to me from several localities in that State, and also from numerous points along the coast of New Jersey.

30. **T. occultator** Casey.—Form moderately elongate, subdepressed. Color varying from rufo-ferrugineous to piceous, shining, the elytra usually slightly darker than the thorax, and often with a subhumeral blotch and a smaller submarginal spot about one-third from apex paler, the spots usually ill defined; inflexed portion of the elytra paler. Head as wide as the thorax at apex; frontal grooves distinct, extending backward behind the middle of the eye; eyes large, prominent; antennæ scarcely one-half as long as the body, piceous, the three basal joints paler; palpi rufous. Prothorax very slightly narrower at base than apex, about one-half wider than long, subquadrate; apex truncate; anterior transverse impression obsolete, the posterior distinct, finely punctulate; median line very fine or nearly obsolete, abbreviated at each end; basal impressions small, deep; base truncate; sides with the margin very narrowly reflexed, more widely towards the basal angles, arcuate in front, sinuate behind; hind angles rectangular, not carinate. Elytra about one-half wider than the thorax, oblong-ovate, with a sutural and two or three dorsal striæ; striæ impunctate, the sutural deeper, the others abbreviated at each end and becoming finer externally; first dorsal puncture about the middle, the second at the tip of the recurved portion of the sutural stria; intervals flat. Body beneath piceous or rufopiceous, the head and thorax usually somewhat paler. Legs testaceous. Length .09–.12 inch; 2.25–3 mm.

This species is subject to considerable variation in color. Captain Casey's type was evidently, from his description, slightly immature. Most specimens from the more northern portions of its range have the elytra unicolorous, rarely with faint traces of the paler markings noted above. These are usually well marked in examples from Florida, while in those known to me from Texas the two spots are united. Two specimens from Florida have the head and thorax rufo-ferrugineous and the elytra piceous, but all these forms are connected by intergrades in the series before me.

It is known to me from various localities along the coast from New Jersey to Florida, and from Brownsville and Pt. Isabel, Texas (Wickham).

31. **T. vittiger** Lec. (Plate VI, fig. 7).—Form elongate, depressed. Color dark piceous or black, shining, the elytra, in typical examples, with a pale longitudinal vitta, which extends from near the humerus almost to apex, and is usually suddenly narrowed about one-fourth from base, in others reduced to a subhumeral spot or even entirely wanting, while in the form *marginellus* the vitta is very broad, extending from the third stria nearly to the margin. Head as wide as the thorax at apex; frontal grooves distinct, extending posteriorly to the middle of the eye; eyes large, prominent; antennæ less than one-half the length of the body, fuscous, the basal joints paler; palpi rufous, darker towards the tip. Prothorax subquadrate, rather more than one-half wider than long, slightly narrower at base than apex; apex truncate; anterior transverse impression obsolete, the posterior deep, finely punctulate; median line distinct, abbreviated before and behind; basal impressions small, deep; base truncate; sides with the margin very narrowly reflexed, arcuate, sinuate in front of the hind angles, which are rectangular and not carinate. Elytra slightly wider than the thorax, elongate, subparallel; striæ impunctate, the sutural deep, second and third very fine, the latter often nearly obsolete, fourth rarely discernable; first dorsal puncture about the middle, the second at the tip of the recurved portion of the sutural stria; intervals flat. Body beneath nearly black, shining. Legs yellowish testaceous. Length .09-.12 inch; 2.25-3 mm.

As indicated above, this species varies greatly in color, the form described as *marginellus* by LeConte being at first sight very distinct from that in which the elytral vitta is entirely wanting, but in a large series all intergrades occur.

It resembles quite closely *T. corax*, the two being very often confused in collections. From the latter species it may be distinguished by the thorax squarely truncate at base, with the sides sinuate in front of the hind angles, which are rectangular. The second dorsal puncture of the elytra is always situated at the tip of the recurved portion of the sutural stria, not between it and the apex as in *corax*.

It occurs along the Pacific Coast from California to Vancouver Island. The form *marginellus* was described by LeConte from the Valley of the Colorado River, about thirty miles from the sea.

32. **T. corax** Lec.—Form depressed. Color black or dark piceous, shining, the elytra sometimes with a pale longitudinal vitta, usually less clearly defined than in *vittiger*, very finely or scarcely perceptibly alutaceous. Head as wide as the thorax at apex; frontal grooves distinct, extending posteriorly as far as the middle of the eye; eyes large, prominent; antennæ less than one-half the length of the body, piceous, the basal joints somewhat paler; palpi piceous. Prothorax about one-half wider than long, very slightly narrower at base than apex; apex truncate; anterior transverse impression obsolete, the posterior distinct, close to

the base; median line fine, abbreviated at each end; basal impressions small, deep; base truncate, slightly obliquely so each side; sides with the margin very narrowly reflexed, arcuate in front, oblique behind; hind angles obtuse, but not rounded, not carinate. Elytra wider than the thorax, oblong-ovate, with a sutural and two or three dorsal striæ very fine, impunctate, the former deeper towards the apex, with the recurved portion strongly hooked at tip, the third and fourth usually very feebly impressed or nearly obsolete; first dorsal puncture near the middle, the second slightly behind the tip of the recurved portion of the sutural stria; intervals flat. Body beneath dark piceous or black. Legs with the femora varying from more or less piceous to nearly black, the tibiæ and tarsi paler. Length .08–.10 inch; 2-2.5 mm.

It is very closely allied to the preceding, and the two species exhibit nearly parallel series of color variations. Examples of *corax* with the elytra longitudinally vittate have the vitta less clearly defined than in typical specimens of *vittiger*. As in the latter species examples occur with a subhumeral and subapical spot or even only a subhumeral spot pale, so that the black and vittate forms are connected by intergrades. The latter seems confined to the more eastern portions of its range. Nearly similar varitions in color are also to be seen in *occultator*. From *vittiger* it may be recognized by the thorax slightly obliquely truncate each side at base, with the sides oblique, not sinuate behind and the hind angles obtuse, as well as by the color of the legs. The latter character, together with its less elongate form, with the thorax less narrowed behind, seems sufficient to separate it from *misellus*.

It occurs in Upper and Lower California, Arizona, New Mexico, Utah, Montana, Colorado, Nebraska and Texas. A specimen from Colorado in Mr. Ulke's collection was taken at an altitude of 10,000 ft.

33. **T. misellus** Laf.—Form slender, elongate, slightly depressed. Color nearly black, shining. Head as wide as the thorax at apex; frontal grooves distinct, extending posteriorly to the middle of the eyes, which are large and prominent; antennæ less than one-half as long as the body, piceous, the basal joints testaceous; palpi testaceous. Prothorax subquadrate, nearly twice as wide as long, distinctly narrower at base than apex; apex truncate; anterior transverse impression obsolete, the posterior feebly marked; median line scarcely evident; basal impressions small; base truncate, slightly obliquely so each side; sides with the margin narrowly reflexed, arcuate, sinuate in front of the hind angles, which are subrectangular, not carinate. Elytra scarcely wider than the thorax, subparallel; sutural and second stria very fine, the third nearly obsolete; first dorsal puncture scarcely in front of the middle, the second slightly behind the tip of the recurved portion of the sutural stria. Legs yellowish testaceous. Length .09 inch; 2.25 mm.

Most nearly allied to *corax*, which it closely resembles, but from which it differs by the thorax more narrowed behind, its more slender form, and the entirely pale legs. The only specimen known to me is so mounted that the greater part of the under side is invisible.

Described from one rather mutilated example in the LeConte collection, received presumably from Chaudoir, but without locality label.

The species was described by Laferté from Texas.

34. **T. bradycellinus** n. sp.—Form broad, subdepressed. Color piceous, shining, the elytra with the sutural region, especially towards the base, tinged with rufous, the paler color not clearly defined. Head as wide as the thorax at apex; frontal grooves distinct, extending behind the middle of the eye; eyes large and prominent; antennæ nearly one-half the length of the body, rufotestaceous; palpi rufotestaceous. Prothorax as wide at base as apex, subquadrate, rather more than one-half wider than long; apex truncate; anterior transverse impression obsolete, the posterior deep; median line fine, abbreviated before and behind; basal impressions small, deep; base truncate, obliquely so each side; sides with the margin narrowly reflexed, feebly arcuate in front, slightly oblique behind; hind angles very obtuse and rounded, not carinate. Elytra about one-half wider than the thorax, oblong-ovate, with four dorsal striæ, the wo inner deeper, the third and fourth nearly obsolete; sutural stria deeper behind; striæ impunctate; first dorsal puncture about the middle, the second behind the tip of the recurved portion of the sutural stria. Body beneath piceous, the thorax and inflexed portion of the elytra tinged with rufous. Legs testaceous. Length .09 inch; 2.25 mm.

Described from an unique, which I owe to the generosity of my friend, Mr. F. C. Bowditch. The resemblance to a small *Bradycellus*, in miniature, is quite marked.

The type, which is a male, is from Louisiana.

Group IX. proximus.

Form usually more or less depressed, rarely slightly convex. Head not inserted in the thorax to the eyes; mentum with two large, forameniform punctures behind the tooth; antennæ with the second and third joints subequal or nearly so, the second joint sometimes very slightly longer than the third; frontal grooves distinct, extending posteriorly at least as far as the middle of the eye. Prothorax narrowly margined, the margin not translucent. Elytra rounded at tip, with the first dorsal puncture on the fourth interval in front of the middle, the second near the apex enclosed within the recurved portion of the sutural stria, which is nearly parallel to the suture and is hooked at tip; marginal stria broadly interrupted at middle, the apical portion distinct, the basal usually obsolete or nearly so and represented by punctures.

The species of this group divide themselves naturally into two series based upon the number of dilated tarsal joints in the males. In the first the two basal joints of the anterior tarsi are slightly dilated; in the second the first joint only. This is shown on Plate VI, figs. 15 and 16 Figure 16, however, represents the tarsus of *T. corruscus*, in which the inner angle of the dilated basal joint is more prolonged than in the other species.

It is greatly to be regretted that I have been obliged to derive the character for the primary division of the group from the secondary sexual characters of the male, more especially as specimens of that sex are much rarer than the females in the majority of our species.

The essential character separating the present from the preceding group is derived from the position of the dorsal punctures of the elytra. In the species herein contained the first of these is situated on the fourth interval, the second within the recurved portion of the sutural stria not far from its tip. In the eighth group their position is very different, the first being placed on the third stria, while the second is situated either at or slightly behind the tip of the recurved portion of the sutural stria, but never enclosed within it. This is shown on Plate VI, figs. 7 and 8. In specimens in which the third and fourth striæ are obsolete the position of the second puncture will indicate to which group the species should be referred.

I regard this as the most difficult group of the genus for study. Several species resemble each other very closely, while some are very variable, especially in color, the extreme forms bearing a greater resemblance to species separated by good structural characters than to other varieties which can be connected with them by a perfect series of intergrades

The following table is the best that I have been able to devise for the separation of our species. One of these, *T. sequax*, is not included therein, the male being unknown to me, but a description of the species is given below. Reference should be made in all cases to the descriptions, which follow in what seems to be the best order for cabinet arrangement.

Males with the first two joints of the anterior tarsi dilated...... ....2.
Males with only the basal joint of the anterior tarsi dilated..................5.
2. Elytra nearly oval, sides strongly arcuate; form slightly convex...........3.
Elytra oblong-oval; form more or less depressed..........................4.
3. Large species; piceous or nearly black, the elytra finely alutaceous with more or less silken lustre; sides of thorax oblique behind, hind angles very obtuse, nearly obsolete. Length .12-.13 inch.........**albipes** Lec.

Smaller; head and thorax brownish, elytra darker, shining; sides of thorax oblique behind, at most feebly sinuate in front of the hind angles, which are obtuse, but slightly prominent. Length .09-.10 inch. **ventricosus** Lec.

4. Elongate; head and thorax piceous or rufo-piceous, the latter rarely paler, elytra testaceous, usually with an ill-defined discal cloud behind the middle; thorax about one-half wider than long, sides more or less sinuate behind, hind angles subrectangular; elytra usually with the two inner striæ distinct, the others feeble or nearly obsolete. Length .11-.13 inch.......................................**proximus** Say.

Broader; testaceous; thorax twice as wide as long, sides not sinuate behind, hind angles obtuse, slightly rounded; elytra more than one-half wider than the thorax. Length .12 inch..............**latipennis** n. sp.

5. Males with the basal joint of the anterior tarsi normally dilated...........6.

Males with the inner angle of the dilated basal joint of the anterior tarsi prolonged in a spiniform process....................................9.

6. Prothorax as wide at base as apex..7.

Prothorax narrower at base than apex.....................................8.

7. Form nearly as in *proximus;* color usually more reddish, the discal cloud better defined and extending to the sides; thorax rarely darker than the elytra, nearly twice as wide as long, sides at most obsoletely sinuate behind, hind angles obtuse; elytra usually more deeply striate. Length .10-.12 inch...............................**scitulus** Lec.

Smaller; testaceous, the head and sometimes the elytra darker; thorax nearly twice as wide as long, sides not sinuate behind. Length .07-.09 inch. **vorax** Lec.

Elongate; testaceous, the elytra often with faint, ill-defined discal cloud or rarely rufo-piceous; thorax about one-half wider than long, sides sinuate behind, hind angles obtuse. Length .07-.09 inch...**pumilus** Dej.

8. Slender; piceous or nearly black; sides of thorax distinctly sinuate behind, hind angles obtuse, but slightly prominent; elytra with at least the two inner striæ distinct. Length .07-.08 inch...........**edax** Lec.

Head piceous, thorax yellow, elytra brownish, the latter subopaque; sides of thorax oblique behind; hind angles obtuse; elytra with the sutural stria only distinct. Length .09-.10 inch.....**columbiensis** n. sp.

9. Moderately elongate, subdepressed; color varying from piceous to dark rufo-testaceous; thorax one-half wider than long, as wide at base as apex, sides at most obsoletely sinuate behind, hind angles obtuse. Length .09-.11 inch.......................................**corruscus** Lec.

35. **T. albipes** Lec.—Form elongate, very slightly convex. Color piceous or nearly black, shining, the elytra alutaceous, usually slightly iridescent, with more or less silken lustre. Head as wide as the thorax at apex; eyes large and prominent; antennæ nearly one-half the length of the body, fuscous; palpi rufous. Prothorax subquadrate, as wide at base as apex, nearly twice as wide as long; apex nearly truncate; anterior transverse impression nearly obsolete, the posterior deep; median line fine, abbreviated at each end; basal impressions small; base truncate, obliquely so each side; sides with the margin narrowly reflexed, arcuate in front, oblique behind; hind angles very obtuse, nearly obliterated, not carinate. Elytra nearly oval, about one-half wider than the thorax,

with a sutural and two or three dorsal striæ, the sutural deeper behind, the outer ones feeble or nearly obsolete: first dorsal puncture about one-third from base, the second about one-fifth from apex. Body beneath piceous. Legs testaceous. Length .12-.13 inch; 3-3.25 mm.

In the males the first two joints of the anterior tarsi are dilated.

Most closely allied to *ventricosus*, but abundantly distinct by the characters given above. The silken lustre on the elytra is very marked in most examples seen, and is apparently due to their being finely alutaceous.

It seems to be confined to the extreme southern portions of the country, being known to me only from Florida and Louisiana.

36. **T. ventricosus** Lec.—Form slightly convex. Head and thorax brown, slightly reddish, the elytra darker; surface shining. Head as wide as the thorax at apex; eyes large and prominent; antennæ about one-half as long as the body, fuscous, slightly paler at each end; palpi rufo-testaceous. Prothorax subquadrate, about one-half wider than long, slightly narrower at base than apex; apex truncate; median line fine, extending between the transverse impressions, which are distinct, the posterior deeper; basal impressions small; base truncate, obliquely so each side; sides with the margin very narrowly reflexed, arcuate in front, oblique behind, rarely very feebly sinuate in front of the hind angles, which are obtuse, but not rounded, not carinate. Elytra nearly oval, about one-half wider than the thorax, the sutural stria deeper behind, the second moderately distinct, the others nearly effaced; striæ impunctate; dorsal punctures distinct, the first about one-third from base, the second about one-fifth from apex. Head and thorax beneath reddish brown, the abdomen more or less piceous. Legs testaceous. Length .09-.10 inch; 2.25-2.5 mm.

The first two joints of the anterior tarsi are dilated in the males.

Smaller and more robust than the preceding. The color is also different, and no trace is visible of the silken lustre so marked in *albipes*. The hind angles of the thorax are somewhat prominent, although obtuse. On the whole it is one of the best defined species of the group.

T. oopterus Chaud. is synonymous with this species.

Like the preceding it is confined to the extreme Southern States. It occurs in Louisiana and Florida.

37. **T. latipennis** n. sp.—Form broad, depressed. Color rufo-testaceous, shining, thorax slightly paler. Head as wide as the thorax at apex; eyes large and prominent; antennæ less than one-half as long as the body, testaceous; palpi testaceous. Prothorax twice as wide as long, as wide at base as apex, subquadrate; apex truncate; median line fine, extending between the transverse impressions, the anterior of which is nearly obsolete, the posterior distinct; basal impressions small; base truncate, obliquely so each side; sides with the margin very narrowly reflexed, arcuate in front, oblique behind; hind angles very obtuse, slightly rounded, not carinate. Elytra oblong-ovate, more than one-half wider than the

thorax, finely alutaceous, with the first four striæ discernable, the two inner deeper, the third and fourth feebly impressed; sutural stria deeper behind; striæ impunctate; dorsal punctures distinct, the first about one-third from base, the second about one-fifth from apex. Body beneath rufo-testaceous. Legs testaceous. Length .12 inch; 3 mm.

The anterior tarsi have the first two joints distinctly dilated in the male.

It is known to me by a single pair in the Horn collection. They were sent to Dr. Horn under the name "*pallidus* Chd.," but the different arrangement of the dorsal punctures forbids any association with that species. In facies it resembles most nearly *vorax* Lec., but is larger and broader, and differs also in the tarsal characters of the male.

The specimens above mentioned are from San Estaban, Lower California.

38. **T. proximus** Say (Plate VI, fig. 8).—Form elongate, subdepressed. Head and thorax piceous, rarely tinged with rufous, the elytra testaceous, with an ill-defined discal cloud slightly behind the middle dusky; surface shining, the elytra with more or less silken lustre. Head as wide as the thorax at apex; eyes large, prominent; antennæ nearly one-half the length of the body, pale fuscous, the basal joint testaceous; palpi testaceous. Prothorax subquadrate, as wide at base as apex, about one-half wider than long; apex truncate; anterior transverse impression nearly obsolete, the posterior deep; median line distinct, abbreviated before and behind; basal impressions distinct; base truncate, obliquely so each side; sides with the margin very narrowly reflexed, arcuate in front, sinuate behind; hind angles subrectangular, not carinate. Elytra oblong-oval, elongate, with the two or three inner striæ distinct, the others feeble or nearly obsolete, the sutural deeper behind; first dorsal puncture about one-third from base, the second about one-fifth from apex. Body beneath piceous, the thorax slightly tinged with rufous. Legs testaceous. Length .11-.13 inch; 2.75-3.25 mm.

The males have the first two joints of the anterior tarsi dilated (Plate VI, fig. 15).

Quite easily recognizable from all the other species of the group except *scitulus*, which it resembles so closely that without both sexes at hand it is often very difficult to separate them. The essential difference between the two species is afforded by the tarsal characters of the male. A few comparative differences may be enumerated, which are usually of assistance in identifying specimens. The thorax in *proximus* is longer as compared with its width, with the sides more or less sinuate behind, and, as a consequence, the hind angles are less obtuse and more prominent. The form is slightly more elongate and less depressed. In color the head and thorax are usually darker than the elytra in the present species, while the discal cloud, which is usually to be seen on the elytra, is in most examples less defined and less transverse, rarely, if ever, attaining the margin.

It occurs from the New England States southward to North Carolina and westward to Nebraska.

39. **T. scitulus** Lec.—Form depressed, slightly elongate. Color rufo-testaceous, the head and rarely the thorax darker, the elytra with a more or less distinct transverse band behind the middle fuscous or piceous; surface shining, usually very finely alutaceous, especially the elytra. Head as wide as the thorax at apex; eyes large, prominent; antennæ scarcely one-half the length of the body, fuscous, the basal joints paler; palpi testaceous. Prothorax as wide at base as apex, subquadrate, nearly twice as wide as long; apex truncate; anterior transverse impression fine, the posterior deep; median line distinct, limited at each end by the transverse impressions; basal impressions distinct; base truncate, obliquely so each side; sides with the margin narrowly reflexed, arcuate in front, oblique behind, rarely obsoletely sinuate in front of the hind angles; hind angles obtuse, but not rounded, not carinate. Elytra oblong-ovate, about one-half wider than the thorax, finely striate, usually with the four or five inner striæ distinct; striæ impunctate, the sutural deeper behind, the second subentire; first dorsal puncture about one-third from base, the second about one-fifth from apex. Body beneath rufo-testaceous. Legs testaceous. Length .10-.12 inch; 2.5-3 mm.

The males are rare as compared with the females. In the former only the basal joint of the anterior tarsi is dilated.

This species resembles *proximus* very closely, and is often confused with it in collections. Aside from the difference in the anterior tarsi of the males, the several distinguishing characters may be mentioned. The prothorax is proportionally wider as compared with its length, with the sides at most obsoletely sinuate behind and the hind angles more obtuse and less prominent. The form is slightly less elongate and more depressed, and the color usually more reddish, with the discal spot of the elytra better defined and more transverse and frequently extending to the margin.

Its range of distribution is nearly the same. Specimens are known to me from Massachusetts, New York, New Jersey, Pennsylvania, the District of Columbia, North Carolina, Indiana, Iowa, Missouri, Kansas and Texas.

40. **T. vorax** Lec.—Moderately elongate, depressed. Color fusco-testaceous, the head and sometimes the elytra darker. Head as wide as the thorax at apex; eyes large, prominent; antennæ about one-half as long as the body, testaceous, the outer joints slightly fuscous; palpi testaceous. Prothorax nearly twice as wide as long, subquadrate, as wide at base as apex; apex truncate; anterior

transverse impression nearly obsolete, the posterior distinct; median line very fine, scarcely distinct, abbreviated at each end; basal impressions small; base truncate, slightly obliquely so each side; sides with the margin narrowly reflexed, arcuate in front, oblique behind; hind angles obtuse, but not rounded, not carinate. Elytra about one-half wider than the thorax, oblong-ovate, with the two inner striæ fine but distinct, the third and fourth nearly obsolete; first dorsal puncture about two-fifths from base, the second about one-fifth from apex. Body beneath fuscous. Legs pale yellowish testaceous. Length .07-.09 inch; 1.75-2.25 mm.

The first joint of the anterior tarsi is dilated in the males.

Often confused with *pumilus*, but distinguishable by the characters above given.

It occurs in California, extending eastward through Arizona and New Mexico to Texas.

41. **T. pumilus** Dej.—Form elongate, depressed. Color usually ferrugineous or rufo-testaceous, the head and often a very ill-defined discal cloud on the elytra or more rarely the entire elytra darker; surface shining. Head as wide as the thorax at apex; eyes moderately large and prominent; antennæ nearly one-half as long as the body, fuscous, the basal joints testaceous; palpi testaceous. Prothorax subquadrate, as wide at base as apex, about one-half wider than long; apex truncate; anterior transverse impression rather feeble, the posterior deep; median line distinct, extending between the transverse impressions; basal impressions small; base truncate, slightly obliquely so each side; sides with the margin very narrowly reflexed, arcuate in front, oblique behind, slightly sinuate in front of the hind angles, which are slightly obtuse, but moderately prominent, not carinate. Elytra oblong-ovate, subparallel, slightly wider than the thorax, the number of striæ variable, usually with the sutural and the two or three inner ones distinct, often obsoletely punctulate; dorsal punctures distinct, the first about one-third from base, the second about one-third from apex. Body beneath ferrugineous or rufo-piceous. Legs testaceous. Length .07-.09 inch; 1.75-2.25 mm.

Only the first joint of the anterior tarsi is dilated in the males.

Resembles most nearly *T. vorax*. The form, however, is more elongate, with the sides of the thorax at least feebly sinuate behind and the hind angles consequently more prominent. Some variation is seen in the number and depth of the elytral striæ and in the depth of the sinuation of the sides of the thorax. The color also varies as indicated above.

It occurs in Louisiana and Texas. A few specimens, which seem referable to this species, have also been seen from Yuma, Cal.

42. **T. edax** Lec.—Form slender, elongate, depressed. Color piceous or nearly black, shining. Head as wide as the thorax at apex; eyes large, prominent; antennæ scarcely one-half the length of the body, piceous, the basal joint paler; palpi fuscous. Prothorax subquadrate, about one-half wider than long, narrower at base than apex; apex truncate; anterior transverse impression obso-

lete, the posterior deep; median line distinct, abbreviated before and behind; basal impressions distinct; base truncate, obliquely so each side; sides with the margin narrowly reflexed, arcuate in front, sinuate behind; hind angles slightly obtuse, not carinate. Elytra oblong-ovate, slightly wider than the thorax, somewhat variably striate, the two inner striæ deeper, the outer usually obsolete or nearly so, more rarely with the third and even the fourth well marked; striæ impunctate; dorsal punctures rather large, the first about one-third from base, the second about one-fifth from apex. Body beneath piceous. Legs testaceous. Length .07-.09 inch; 1.75-2.25 mm.

In the males only the basal joint of the anterior tarsi is dilated.

One of the best-marked species of the group.

It occurs in California, Oregon, Nevada, Idaho and Utah.

43. **T. columbiensis** n. sp.—Form elongate, depressed. Head piceous, thorax yellow, elytra reddish brown, the latter subopaque, with more or less silken lustre. Head as wide as the thorax at apex; eyes large and prominent; antennæ about one-half as long as the body, fuscous, the basal joints yellowish testaceous; palpi yellowish testaceous. Prothorax subquadrate, narrower at base than apex, about one-half wider than long; apex truncate; transverse impressions distinct, the median line fine, extending between them; basal impressions very small; base truncate, obliquely so each side; sides arcuate in front, oblique behind, the margin very narrowly reflexed; hind angles obtuse, but not rounded, not carinate. Elytra oblong-ovate, subparallel, slightly wider than the thorax; striæ impunctate, the sutural distinct, deeper posteriorly, the second and third feeble or obsolete; dorsal punctures distinct, the first about one-third from base, the second about one-fifth from apex. Body beneath rufo-piceous, the thorax yellowish. Legs yellowish testaceous. Length .09-.10 inch; 2.25-2.5 mm.

The first joint of the anterior tarsi is dilated in the male.

The name above used is a manuscript one employed in both the LeConte and Zimmermann collections. It seems best to retain it, especially as many specimens have been distributed under that name by Dr. LeConte, and it also occasionally occurs in our literature.

From *corruscus*, to which it seems most nearly allied, it may be distinguished by the thorax narrower at base than apex, and by the more oblong elytra, which are narrower as compared with the thorax. In the male the basal joint of the anterior tarsi is normally dilated, the inner angle not being prolonged in a spiniform process as in the latter species.

It is known to me from South Carolina and Florida.

44. **T. corruscus** Lec.—Form subdepressed. Color varying from nearly black to piceous or more rarely dark rufo-testaceous, the elytra sometimes feebly iridescent. Head as wide as the thorax at apex; eyes large, prominent; antennæ scarcely one-half as long as the body, fuscous, the basal joint testaceous; palpi testaceous. Prothorax subquadrate, about one-half wider than long, as wide at base as apex; apex truncate; anterior transverse impression feeble or nearly obsolete; median line fine, abbreviated at each end; posterior transverse impression

deep; basal impressions distinct; base truncate, obliquely so each side; sides with the margin narrowly reflexed, arcuate in front, oblique behind, sometimes obsoletely sinuate in front of the hind angles, which, though obtuse, are in that case made slightly prominent: hind angles not carinate. Elytra about one-half wider than the thorax, oblong-oval, with a sutural and from one to three dorsal striæ, the latter feebly impressed or nearly obsolete; striæ impunctate, the sutural deeper posteriorly; first dorsal puncture about one-third from base, the second about one-fifth from apex. Body beneath piceous, sometimes tinged with rufous. Legs testaceous. Length .09-.11 inch; 2.25-2.75 mm.

Only the basal joint of the anterior tarsi is dilated in the males, but the inner angle is prolonged in a spiniform process, which, so far as known to me, is peculiar to this species. This is shown on Plate VI, fig. 16.

This is one of our most abundant representatives of the genus, and is subject to considerable variation. Some specimens have the head and elytra very finely alutaceous, a silken or faintly iridescent lustre being thus imparted to the latter, but this disappears by degrees in a large series. The color varies as indicated above, as a rule examples from the more western postions of its range being paler than those from the extreme eastern regions, but many exceptions occur. In dark specimens the extreme tip of the elytra is usually very slightly paler. The reverse is sometimes seen in pale examples, the disk in such being often paler than the margins and tip.

It is very widely distributed, occurring along the Atlantic coast from Massachusetts to Florida and westward to the Rocky Mts., and also in Canada.

45. **T. sequax** Lec.—Slender, elongate, feebly convex. Head and thorax rufo-piceous, elytra testaceous. Head as wide as the thorax at apex; eyes moderately large and prominent; antennæ less than one-half the length of the body, pale fuscous, the basal joints testaceous; palpi testaceous. Prothorax subquadrate, twice as wide as long, slightly narrower at base than apex; apex truncate; anterior transverse impression feeble, the posterior deep, the median line fine, extending between them; basal impressions small; base truncate, obliquely so each side; sides with the margin narrowly reflexed, arcuate, sinuate in front of the hind angles, which are slightly obtuse, but prominent, not carinate. Elytra elongate, slightly wider than the thorax; sutural stria deeper behind, impunctate, the other dorsal striæ nearly obsolete; dorsal punctures distinct. Body beneath rufo-piceous. Legs pale testaceous. Length .10 inch; 2.5 mm.

Dr. LeConte's type is the only example known to me. It is a female, and it is therefore impossible to know its affinities as indicated by the tarsal characters of the male. It resembles most closely *T. corruscus*, but differs by its more elongate and slightly more convex form and by the form of the thorax.

It was described from the Rocky Mts.

Bibliography and Synonymy.

TACHYS Schaum.

Group I.

1. **T. ænescens** Lec., Ann. Lyc., 1848, iv, p. 473 (*Blemus*); Class. Col. N. A., i, 1863-6, p. 36.—Mots., Etud. Ent., 1862, xi, p. 27 (*Lymnastis*).—Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 211 (*Lymnastis*).

Group II.

2. **T. nanus** Gyll., Ins. Suec., 1810, ii, p. 30 (*Bembidium*).—Dej., Spec., 1831, v, p. 51 (*Bembidium*).
   inornatus Say, Trans. Am. Phil. Soc., 1823, ii, p. 88 (*Bembidium*); Ed. Lec., ii, p. 502.—Dej., Spec., 1831, v, p. 52 (*Bembidium*).—Lec., Ann. Lyc., 1848, iv, p. 471.—Mots., Etud. Ent., 1862, xi, p. 27 (*Tachymenis*).
   picipes Kirby, Faun. Bor. Am., 1837, iv, p. 56, tab. 8, fig. 6 (*Tachyta*).
   rivularis Mots., Kaf. Rus., 1850, p. 8, not. 2; Bull. Mosc., 1859, xxxii, p. 123; Etud. Ent., 1862, xi, p. 27 (*Tachymenis*).—Mann., Bull. Mosc., xxvi, 1853, p. 152.
3. **T. falli** n. sp.

Group III.

4. **T. flavicauda** Say, Trans. Am. Phil. Soc., 1823, ii, p. 87 (*Bembidium*); Ed. Lec., ii, p. 502.—Dej., Spec., 1831, v, p. 53 (*Bembidium*).—Lec., Ann. Lyc., 1848, iv, p. 471.—Mots., Etud. Ent., 1862, xi, p. 27 (*Tachymenis*).
   apicalis Sturm., Cat., 1843, p. 36.

Group IV.

5. **T. granarius** Dej., Spec., 1831, v, p. 61 (*Bembidium*).—Chaud., Rev. et. Mag. Zool., 1868, Sér. 2, xx, p. 214.
   occultus Lec., Ann. Lyc., 1848, iv, p. 470.
   glossema Casey, Cont. Col., pt. ii, 1885, p. 70 (*Barytachys*).
6. **T. fuscicornis** Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 214.
   gemellus Casey, Cont. Col., pt. ii, 1885, p. 71 (*Barytachys*).
7. **T. incurvus** Say, Trans. Am. Phil. Soc., 1834, iv, p. 440 (*Bembidium*); Ed. Lec., ii, p. 554.—Mots., Etud. Ent., 1862, xi, p. 27 (*Tachyura*).—Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 213.
   pulchellus ‡ Lec., Ann. Lyc., 1848, iv, p. 469.
   anceps Lec., ibid, p. 470.
8. **T. dolosus** Lec., Ann. Lyc., 1848, iv, p. 470.—Mots., Etud. Ent., 1862, xi, p. 27 (*Tachyura*).
9. **T. rapax** Lec., Ann. Lyc., 1851-2, v, p. 192.
10. **T. audax** Lec., Ann. Lyc., 1851-2, v, p. 193.
11. **T. anthrax** Lec., Ann. Lyc., 1851-2, v, p. 192.
12. **T. nebulosus** Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 214.
    incurvus ‡ Lec., Ann. Lyc., 1848, iv, p. 469.
13. **T. liebecki** n. sp.
14. **T. xanthopus** Dej., Spec., 1831, v, p. 60 (*Bembidium*).—Lec., Ann. Lyc., 1848, iv, p. 469.—Mots., Etud. Ent., 1862, xi, p. 27 (*Tachyura*).
    mendax Lec., Ann. Lyc., 1848, iv, p. 469.

15. T **capax** Lec., New Species, 1863-6, p. 20.
16. T. **vivax** Lec., Ann. Lyc., 1848, iv, p. 468.—Mots., Etud. Ent., 1862, xi, p. 27 (*Tachyura*).
17. T. **tripunctatus** Say, Trans. Am. Phil. Soc., 1834, iv, p. 439 (*Bembidium*); Ed. Lec., ii, p. 554.—Lec., Ann. Lyc., 1848, iv, p. 469.
18. T. **obesulus** Lec., Ann. Lyc., 1851-2, v, p. 192.
19. T. **ferrugineus** Dej.. Spec., 1831, v, p. 59 (*Bembidium*).
    ovipennis Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 215.
    truncorum Hald., Mss.

Group V.

20. T. **frontalis** n. sp.

Group VI.

21. T. **sellatus** Lec., Ann. Lyc., 1851-2, v, p. 191 (*Pericompsus*).
22. T. **ephippiatus** Say, Trans. Am. Phil. Soc., 1834, iv, p. 439 (*Bembidium*); Ed. Lec., ii, p. 553 (*Pericompsus*).—Lec., Ann. Lyc., 1848, iv, p. 468; ibid, 1851-2, v, p. 191 (*Pericompsus*).
    elegantulus Laf., Rev. Zool., 1841, p. 46.
    mundissimus Zimm., Mss.
23. T. **lætulus** Lec., Ann. Lyc., 1851-2, v, p. 192 (*Pericompsus*).

Group VII.

24. T. **trechiformis** n. sp.
25. T. **rufotestaceus** n. sp.
26. T. **lævus** Say, Trans. Am. Phil. Soc., 1823, ii, p. 88 (*Bembidium*); Ed. Lec., ii, p. 503.—Lec., Ann. Lyc., 1848, iv, p. 472.
    troglodytes Dej., Spec., 1831, v, p. 44 (*Bembidium*).

Group VIII.

27. T. **mordax** Lec., Ann. Lyc., 1851-2, v, p. 193.
28. T. **virgo** Lec., Ann. Lyc., 1851-2, v, p. 194.
29. T. **pallidus** Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 212.
    litoralis Casey, Cont. Col., pt. i, 1884, p. 15.
30. T. **occultator** Casey, Cont. Col., pt. ii, 1885, p. 69.
31. T. **vittiger** Lec., Ann. Lyc., 1851-2, v, p. 193.
    marginellus Lec., ibid, p. 193.
32. T. **corax** Lec., Ann. Lyc., 1851-2, v, p. 194.
33. T. **misellus** Laf., Rev. Zool., 1841, p. 48.
34. T. **bradycellinus** n. sp.

Group IX.

35. T. **albipes** Lec., New Species, 1863-6, p. 20.
36. T. **ventricosus** Lec., New Species, 1863-6, p. 20.
    oopterus Chaud., Rev. et Mag. Zool., Sér. 2, xx, p. 212.
37. T. **latipennis** n. sp.
38. T. **proximus** Say, Trans. Am. Phil. Soc., 1823, ii, p. 88 (*Bembidium*); Ed. Lec., ii, p. 503.—Lec., Ann. Lyc., 1848, iv, p. 471.

39. T. **scitulus** Lec., Ann. Lyc., 1848, iv, p. 471.—Mots., Etud. Ent., 1862, xi, p. 27.
40. T. **vorax** Lec., Ann. Lyc., 1851-2, v, p. 194.
41. T. **pumilus** Dej., Spec., 1831, v, p. 43 (*Bembidium*).
    umbripennis Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 213.
42. T. **edax** Lec., Ann. Lyc., 1851-2, v, p. 194.
43. T. **columbiensis** (Zimm. Mss.), n sp.
44. T. **corruscus** Lec., Ann. Lyc., 1848, iv, p. 472.—Mots., Etud. Ent., 1862, xi, p. 27 (*Polyderis*).—Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 211.
    æneipennis Chaud., Rev. et Mag. Zool., 1868, Sér. 2, xx, p. 211.
45. T. **sequax** Lec., Ann. Lyc., 1848, iv, p. 472.

APPENDIX.

It has been thought best to follow the course adopted in my paper on *Bembidium* and here include the original descriptions of those species which have been described from North America, but which have not yet been recognized in the United States. The work in which they were published is quite rare in this country and consequently inaccessible to the majority of our students. Doubtless some, at least, of these names are synonymous with others now in use, but the descriptions are so meagre that it has not been possible to identify them. As all the species were described by Motschultsky, I have reprinted the table of the genera into which he has divided *Tachys* (Etudes Ent., 1862, xi, p. 27). The species follow under his generic names, those of each genus being arranged in alphabetical order.

The table of genera is as follows: *

I. "Antennes allongées, composées d'articles plus longs que larges.
    a.—Corps plus ou moins convexe, ovalaire, luisant:
        1. élytres rétrécies vers la base, glabres au milieu; avec un petit sillon basal et un entier vers la suture et la marge lateral. . **Tachylopha.**
        2. élytres profondement sillonées vers la suture. . . . . **Tachyura.**
    b.—Corps plus ou moins déprimé, oblong ou parallèle, avec un reflet metallique changeant sur les élytres, qui sont striées surtout vers la suture. **Tachys.**
    c.—Corps déprimé, allongé, parallèle; élytres multistriées; tête petite, courte; troisième article des palpes max. elargi . . . . **Lymnastis.**
II. Antennes pas ou à peine plus longues que la moitié du corps, robustes, grossissant vers l'extrémité et composées d'articles plus ou moins larges.

---

* Of our other North American species Motschultsky refers the following to the genera given in the table:

Tachyura—dolosus, xanthopus, vivax and *incurvus.*
Tachys—fallax and *scitulus.*
Lymnastis—ænescens
Tachymenis—nanus and *flavicauda.*
Polyderis—corruscus.

a.—Corps déprimé, presque parallèle; cotés du corselet rebordés sur toute leur largeur, sans angles relevés en arrière; élytres multistriées; elles vivent sous l'écorce des arbres.................... **Tachymenis.**

b.—Corps un peu convexe, ovalaire; cotés du corselet rebordés seulement en arrière avec les angles à peine saillants: élytres glabres, sans stries ou à peine marquées de chaque coté de la suture de sillons plus ou moins effacés; palpes grands, de la longueur de la tête, graduellement atténués en avant.................................... **Polyderis.**"

Tachyura brunnicollis Motsch., Etudes Ent., 1862, xi, p. 28.—"Elongato-ovata, convexa, nitida, glabra, rufo-brunnea, elytris, antennarum apice oculisque nigris, antennarum basi pedibusque rufo-testaceis; capite triangulare, fronte plano, utrinque oblique sulcato; thorace capite ⅓ latiore, transverso, postice subangustato, truncato, basi transversim impresso, angulis rectis, paulo prominulis, anticis rotundatis; elytris thorace paulo latioribus et fere triplo longioribus, convexiusculis, glaberrimis, postice arcuatim attenuatis, sutura utrinque unisulcatum."
"Long. 1 l.—lat. elytr. ⅓ l."

"De la forme convexe de la *T. vivex* Lec., mais sans taches testacées sur les élytres."

"Je l'ai prise assez communement aux environs de Mobile dans le midi des Etats-Unis de l'Amerique."

Tachys æneipennis Motsch., Etudes Ent., 1862, xi, p. 29.—"Elongato-subovata, depressa, nitida, nigra, elytris æneo-sericeis; thorace brunnescente, ore, palpis, antennarum basi pedibusque pallido-testaceis; capite triangulare, inter oculos bifoveolata; thorax capite paulo latiore, subquadrato, postice angustato, basi truncato, profundo transversim impresso, angulis posticis suboblique truncatis, vix prominulis, linea media distincta; elytris thorace paulo latioribus et triplo longioribus, ovalis, indistincto striatis, fere glabris, ad suturam utrinque profundo unisulcatis, ante mediam unifoveolatis.—Long. ¾ l.-lat. elytr. ¼ l."

"Un peu plus large et plus ovalaire que notre *T. bistriata,* à pattes beaucoup plus claires et les élytres un peu metallique."

"Des environs de Mobile dans le sud les Etats-Unis de l'Amerique."

[This species has been very generally regarded as a synonym of *corruscus* Lec. Several characters, however, indicate that this conclusion may be erroneous, and I feel that with our present ignorance of Motschultsky's type we are not warranted in so regarding it.—R. H.]

Tachymenis marginicollis Motsch., Etudes Ent., 1862, xi, p. 32.—"Oblongo-ovata, depressa, nitida, nigro-picea, ore, palpis, antennis pedibusque rufo-testaceis, thoracis lateribus reflexis, testaceis, elytris basi posticeque lato-rufis: capite minuto, triangulare, inter oculos bisulcato, sulcis valde divaricatis; thorace capite paulo latiore, transverso, quadrangulato, postice recto-truncato, lateribus antice arcuatim subangustatis, angulis posticis rectis, carinulatis; elytris thorace ½ latioribus et 2½ longioribus, ellipticis, antice truncatis, medio fere parallelis, striatis, striis postice obliteratis, interstitiis inæqualibus; antennis capite thoraceque conjunctis vix longioribus.—Long ⅗ l.-lat. elytr. ⅓ l."

"Formes et couleurs de la *T. flavicauda*, mais un peu plus larges aux élytres, dont la base est roussâtre comme l'extrémité."

"Elle vient des environs de la Nouvelle-Orléans en Louisiane."

[Probably *flavicauda* Say. The abscence of any mention of the dorsal punctures or structure of the mentum prevents one from placing it as a synonym.—R. H.]

Tachymenis reflexicollis Motsch., Etudes Ent., 1862, xi, p. 31.—Oblonga, depressa, nitida, testacea, oculis nigris, capite postice infuscato, triangulare, inter oculos bisulcato, sulcis postice divaricatis, thorace capite ¼ latiore, subtransverso, quadrangulato, postice recto-truncato, lateribus lato reflexis, antice arcuatim angustatis, angulis posticis rectis, carinulatis; elytris thorace ½ latioribus et triplo longioribus, ellipticis, subcrenato-striatis, striis postice obliteratis; antennis capite thoraceque conjunctis vix longioribus-—Long. ⅗ l.–lat. elytr. ⅖ l.

"Par les bords reflechies du corselet, sa forme et sa couleur, cette éspèce rapelle un peu notre *Lathridius transversalis* fraichement éclos."

"Je l'ai trouvée aux environs de New York."

Polyderis glabrella Motsch., Etudes Ent., 1862, xi, p. 34.—"Subovata; fere depressa, nitida, glabra, rufo-testacea, capite nigerrimo, elytris versus suturam paulo infuscatis, ore, palpis, antennis pedibusque subpallido-testaceis; capite triangulare, inter oculos bisulcato, sulcis postice paulo divaricatis, thorace capitis fere latitudine, subcordato, postice impresso, subsinuato-truncato, angustissime marginato, linea media distincta, angulis posticis obtusis; elytris thorace paulo latioribus et 2½ longioribus, antice subparallelis, humeris, distinctis, striis deficientibus; antennis ut in priori" [*T. testaceolimbata*].

"Long. 1 l.-lat. elytr. $\frac{3}{7}$ l."

"Elle est un peu plus parallele que la précedénte et de couleur testacé. Je l'ai prise également à Mobile."

Polyderis testaceolimbata Motsch., Etudes Ent., 1862, xi, p. 33.—"Ovata, leviter convexa, nitida, fere glabra, fusco-picea, fronte nigro-subæneo, ore, palpis, antennis, elytrorum suturam, lateribus pedibusque plus minusve pallido-testaceis; capite triangulare, inter oculos bisulcato, sulcis obliquis, postice divaricatis, pilis longissimis nonnulis; thorace capite paulo longiore, subtransverso, cordato, postice impresso, subsinuato-truncato, angustissime marginato, linea media distincta, angulis posticis subobtusis; elytris thorace ⅓ latioribus et triplo longioribus, ovatis, striis obliteratis, ad suturam una solum distincta, antennis incrassatis, dimidio corporis paulo longioribus, articulis 4–11 subovato-quadratis, 11° majore, ovato; palpis elongatis, apice valde subulato-attenuatis.—Long. 1 l.–lat. elytr. ⅖ l."

"Elle est plus large et plus ovalaire que notre *T. bistriata*, les stries sur les élytres très peu distinctes, son corselet sinué sur le milieu du bord postérieur, ses antennes plus larges, plus comprimées et ses palpes plus longues et plus attenuées vers leur extrémité, ce qui forme déjà une transition vers celles des *Trechus* et des *Anophthalmus.* *Pol. corrusca* Lec. est plus large et plus courte."

"J'ai ramassé cet interessant insecte aux environs de la ville Mobile dans le sud des Etats-Unis de l'Amerique du Nord."

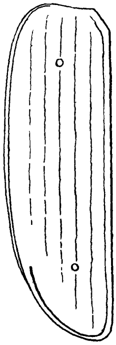
EXPLANATION OF PLATE VI.

Fig. 1.—Elytron of *Tachys æenescens.*
" 2. " " *T. nanus.*
" 3. " " *T. flavicauda.*
" 4. " " *T. tripunctatus.*
" 5. " " *T. ephippiatus.*
" 6. " " *T. lævus.*
" 7. " " *T. vittiger.*
" 8. " " *T. proximus.*
" 9.—Head and thorax of *T. æenescens.*
" 10.—Thorax of *T. incurvus.*
" 11. " " *T. tripunctatus.*
" 12.—Mentum of *T. vivax.*
" 13. " " *T. proximus.*
" 14.—Antenna of *T. lævus.*
" 15.—Anterior tarsus of *T. proximus* ♂.
" 16. " " " *T. corruscus* ♂.

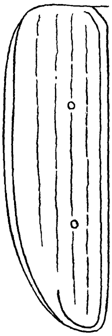
ERRATA.

Page 197, line 28, for meidan *read* median.
" 255, " 2 from bottom, for testaceous *read* piceous.
" 229, " 28, for the several *read* several.

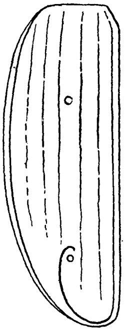
2



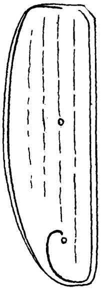
4



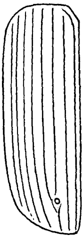
8



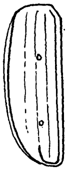
7



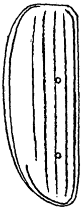
1



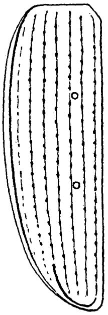
6



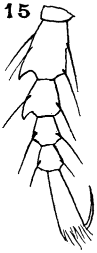
3



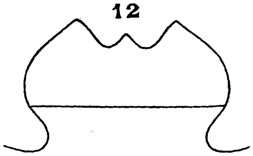
5



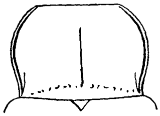
15



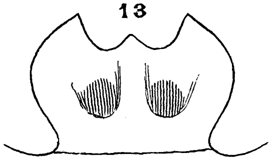
12



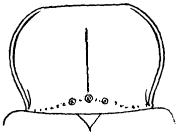
10



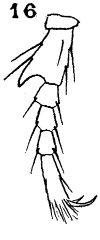
13



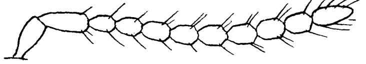
11



16



14



9